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INTERNATIONAL S.A.

CH-1450 STE - CROIX / SUISSE

SERVICE APRES-VENTE BOLEX
AFTER-SALES SERVICE
KUNDENDIENST

PIECES DE RECHANGE ET INSTRUCTIONS TECHNIQUES
ERSATZTEILE UND TECHNISCHE ANLEITUNGEN
SPARE PARTS AND SERVICE INSTRUCTIONS

CAMERAS
KAMERAS **H16EBM** **300 401 →**
CAMERAS

H3

EDITION 1971

INTRODUCTION

Keeping the catalog up-to-date

BOLEX

You are requested to file in this service manual all the corresponding printed matters which you will receive henceforward and to check the information contained therein whenever you wish to compile a spare parts order.

All technical documentation is supplied to your service department on a loan basis and must by no means be handed over to third parties.

BOLEX INTERNATIONAL S.A.
After-Sales Service

CH-1450 Ste-Croix / Switzerland

Every document of this catalogue is composed of numbered "boxes" respectively "columns" containing the following information :

Box No. 1 : The type of document, i.e.

TM = index : white paper

INTRODUCTION : white paper

PD = spare parts sheet : white paper

IT = technical instructions : salmon-pink paper

FM = modification sheet : blue paper.

Filing order :
IT are filed after the corresponding spare parts sheets. If there are several versions of the same subject, additional PD may be issued. If no special IT are elaborated, the technical instructions belonging to the original PD are also valid for the additional PD.

FM are filed so as to face the corresponding PD or IT, according to the indication in box 9. **

Box No. 2 : The name of the subject treated.

Box No. 3 : The product to which the treated subject belongs.

Box No. 4 : The serial number indicating the introduction of the subject treated. (Approx.)

Box No. 5 : The trade mark of the manufacturer.

Box No. 6 : The name of the catalogue (see also label on back of folder).

Box No. 7 : The issuing date of the document.
Filing order :
- INTRODUCTION sheets : Of all the INTRODUCTION sheets bearing the same indications in boxes 1 - 6 - 11, only the sheet with the latest issuing date must be kept.

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- TM, PD and IT : Of all the sheets bearing the same indications in boxes 1 - 6 - 10 - 11 (1 - 6 for TM), only the sheet with the latest issuing date must be kept.
  ATTENTION : When discarding a superseded sheet, be sure that the corresponding FM are eliminated at the same time !
- FM : Of all the FM bearing the same indications in boxes 1 - 6 - 9 - 11, only the sheet with the latest issuing date must be kept.

Box No. 8 : The language in which the document is printed :

* = trilingual

F = French

D = German

E = English.

Box No. 9 : Space reserved for special indications.

On the FM, this space contains the specifications in box 1 - 10 - 11 - 7 of the PD or IT for which the FM is valid.

Box No. 10 : Letter of tab under which the PD and IT are filed.

On the IT this section is devided into two parts, the lower showing the page number of the PD whereafter the IT are filed.

Box No. 11 : The page number.

Filing order :

- TM, INTRODUCTION sheets, PD and FM : Arabic numerals in numerical order.
- IT : Roman numerals in numerical order.

Box No. 12 :
- On INTRODUCTION sheets : miscellaneous
- On PD : "exploded view" drawings with part numbers
- On IT : text.

Box No. 13 : Sketches illustrating the technical instructions.

Column No. 15 : The number of the respective modification.

Column No. 16 : The old parts, valid before the introduction of the modification.

Column No. 17 : The new parts, valid after the introduction of the modification.

Column No. 18 : Explanatory notes.

**) On receipt of a FM, you should rectify immediately the corresponding document.

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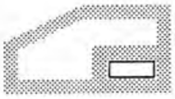
Sign	Signification
	As a rule, compound parts which have only one or no symbol at all, cannot be dismantled. Their components are, consequently, not available separately.
$\boxed{.......}$	Design available.
(.......)	Part not available.
(.......†)	Superseded design. Available as stock lasts.
(.......☠)	Faulty parts, to be returned for exchange. Cheap parts may be destroyed. Moreover, this sign constrains the repairman to fit the new version on any apparatus equipped with the old one, no matter for which reason the apparatus is submitted to him.
(.......) *	Available for fully equipped service stations.
	Parts appearing in the dotted field are available as an assembly. The respective reference is to be found in a corner of the field.
...X $\boxed{.......}$	Quantity of identical parts going with the assembly.
○$\boxed{.......}$	○ = numbering of the designs (to designate interchangeability).
○$\boxed{.......}$ I 2/1 & 3	Part interchangeable. Design ② may be fitted instead of ① and ③.
○$\boxed{.......}$ NI 1/2	Part not interchangeable. Design ① cannot be mounted instead of ②.
○$\boxed{.......}$ NI 2/1; I 2/3	Design ② is not interchangeable with ① but with ③.
$\boxed{.......}$ d=... e=...	Mechanical characteristics (thickness, diameter, size, length, appearance, colour, etc...) enabling you to distinguish the old version from the new one.

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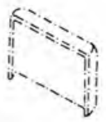
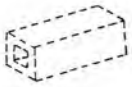
Conventional signs

→[ ]	The bracketed parts make the new version interchangeable with the former one.
[.......] z=...	Number of teeth of a gear.
[.......] (N)	Parts to be mounted according to need (for adjustment).
→No.	Design valid up to serial number.
No. ....→	Design valid from serial number.
▲	Symbol of grease to be applied.
■	Symbol of oil to be applied.
●	Symbol of glue to be used.
∴	Symbol of paint to be applied.
◑	Symbol of mastic to be applied.
⊗	Symbol of thinner to be applied.
Ⓘ	Symbol of solid lubricant to be applied.
	Part shown on another page or in another catalogue.
	Part not available. If shown in a screened area it will be included in the corresponding assembly.

The above mentioned signs do not belong to the spare parts number and may, therefore, be omitted when placing an order.

F) Code de couleurs des fils électriques et gaines isolantes.

D) Farbcode für elektrische Drähte und Isolierhüllen.

E) Colour code for electric wires and insulating tubing.

Code	Couleur / Farbe / Colour
ⓐ	Jaune / Gelb / Yellow
ⓑ	Noir / Schwarz / Black
ⓒ	Rouge / Rot / Red
ⓓ	Vert / Grün / Green
ⓔ	Blanc / Weiss / White
ⓕ	Bleu / Blau / Blue
ⓖ	Orange / Orange / Orange
ⓗ	Beige / Beige / Beige
ⓙ	Rose / Rosa / Pink
ⓚ	Violet / Violett / Purple
ⓛ	Brun / Braun / Brown
ⓜ	Gris / Grau / Grey
ⓝ	Non isolé Nicht isoliert Not insulated
ⓞ	Aluminium (gainage transparent) Aluminium (durchsichtige Isolation) Aluminium (transparent insulation)
ⓟ	Cuivre (gainage transparent) Kupfer (durchsichtige Isolation) Copper (transparent insulation)

F) Afin d'en faciliter la lecture, nous vous recommandons de retracer sur les plans de câblage les fils avec leur couleur correspondante.

D) Wir empfehlen Ihnen, zwecks besserer Lesbarkeit die Drähte auf den Verdrahtungsschema mit den entsprechenden Farben nachzuziehen.

E) For better intelligibility it is recommended to trace the wires on the wiring diagrams with their respective colours.

TM

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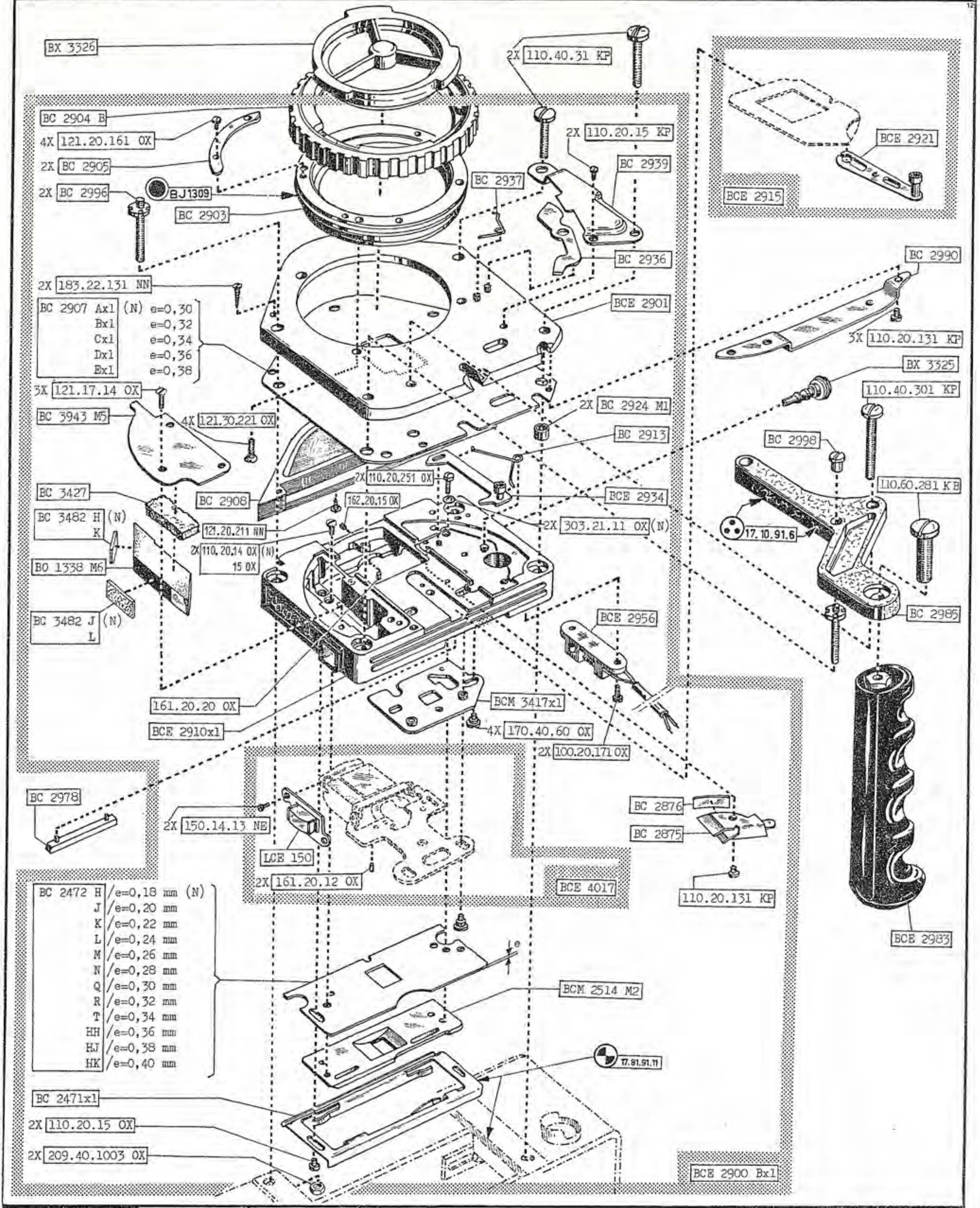
PD

Porte-objectif
Objektivhalter
Lens Holder

H16EBM

300 401 →

BOLEX



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*

A

1

Lens Holder

1. Lens holder

Use support BJ 133 for all mounting proceedings of the lens holder.

Important : All lens elements, the prism and their seatings must be cleaned scrupulously, as the slightest particle of dust or finger prints appear greatly magnified in the viewfinder.

1.1 Collecting lenses (fig. 1)

Using BJ 579, carefully lift up lenses (a) at their base and remove with BJ 114. In case of lens replacements, calibre with BJ 583 the diameter of the nylon wedges to be used for a correct fastening in the seatings.

1.2 Film gate (fig. 2)

For the mounting and the centering of both film gate and wedge onto the lens holder, use support BJ 1569 with gauge BJ 837 at its top. Film gate (c) is positioned through the 3 pins (g) and centered by the window on cylinder (f). Set wedge (d) and lens holder (e) guided by the 4 pins of gauge and support; tighten the 4 screws (h). The outer edges of wedge (d) must come flush with the bearing surface of the film gate.

1.3 Transport prism (fig. 3)

Introduce prism (j) in its seating with the chamfered edge above and select wedges (k) and (l) which must provide no play at the fixing. If the thickest wedges are still insufficient, stick a small piece of black self-adhesive tape at the place marked by the arrow. Use tool BJ 114 for driving out the wedges.

1.4 Reflex prism (fig. 4)

The mounting and dismantling of the reflex prism (m) may be effected when the lower plate (o) has been removed, since the space available to carry out such works is very limited.

Lift up prism (m), engage the retaining wedge BJ 581 and close the prism against BJ 581.

Carefully introduce prism assembly (m) without scratching same.

Put up prism (m) and remove BJ 581.

Shift the lower plate (o) under the hinge plate (n) and screw the 4 screws (p) without tightening.

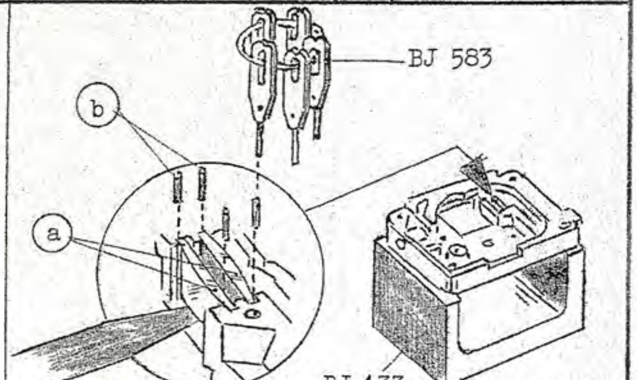

Fig.1

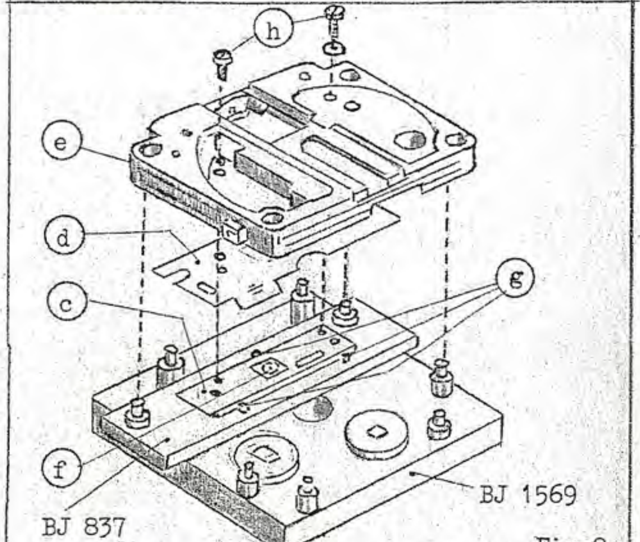

Fig.2

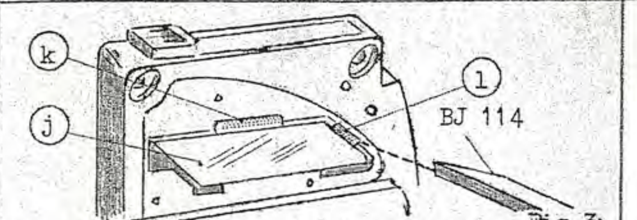

Fig.3

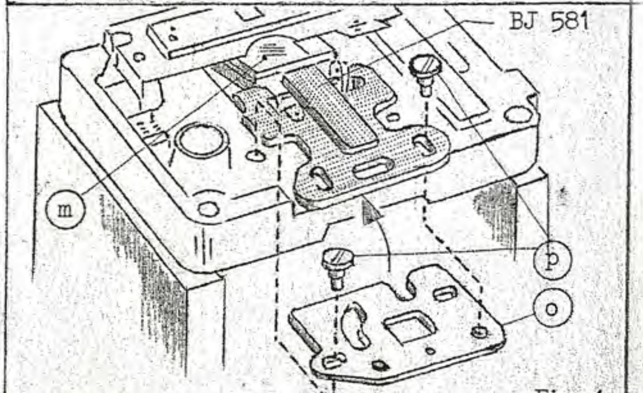

Fig.4

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2. Optical flange focal distance

State of the lens holder as per fig. 5 with gate (a), a shim plate (b) of medium thickness (for instance e = 0,30 mm), a spacer (k) of medium thickness and the reflex prism (c) mounted.

2.1 Preparation as per fig. 6

Fit the lens holder onto support BJ 811 with the 2 screws and nuts BJ 811 E. Place mirror BJ 1597 opposite the gate window and retain it with spring (d). Switch on the autocollimator to position 1 (min. light intensity). Center the gate window with respect to the autocollimator axis. Slide the autocollimator lens to about 25 cm from the lens holder, adjusting the vernier scale to 0.

Horizontal adjustment : Adjust the angular position of support BJ 811 so that the luminous line appears diametrically in the eyepiece, fig. 7.1, position A.

Vertical adjustment : Loosen screw (f) and turn screw (e) with a view to bringing the lens holder into its vertical plane

2.2 Parallel adjustment of the prism

Put up the reflex prism and remove mirror BJ 1597. Loosen screw (h) and set the prism parallel with respect to the gate by acting on screw (j) and on the 2 screws (l). The position of the prism is correct once the luminous line is visible in the eyepiece as per position A, but positions B and C, fig. 7.2, are still acceptable.

These adjustments precede the adjustment of the flange focal distance and may be rectified while adjusting the flange focal distance of the ground glass screen of the prism.

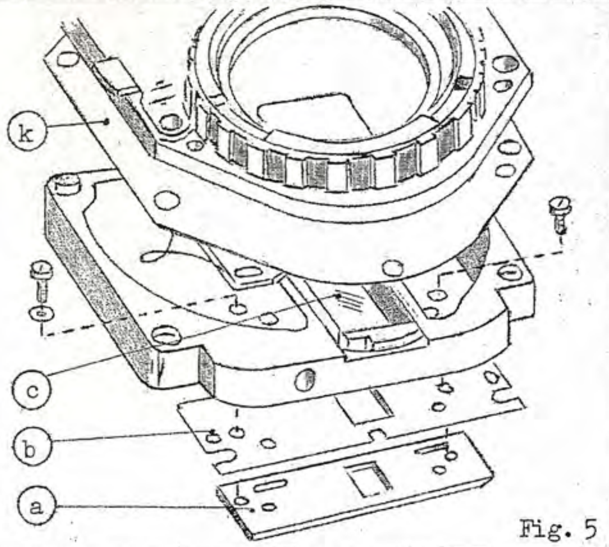

Fig. 5

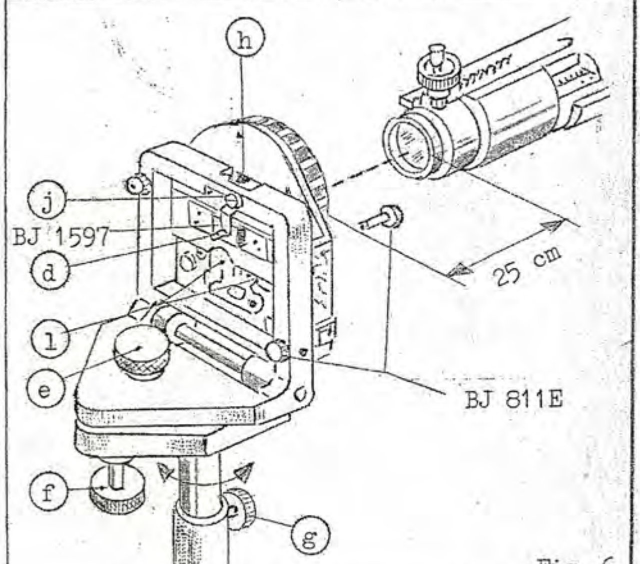

Fig. 6

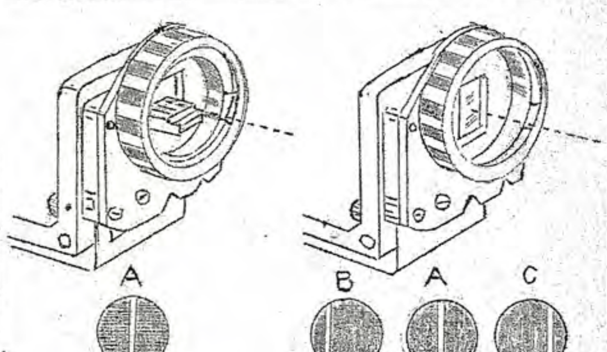

Fig. 7.1

Fig. 7.2

Fig. 7

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2.3 Adjusting the optical flange focal distance

Preparation as per fig. 8.
Fit the calibration lens BJ 151 and the bayonet support BJ 1310 to the lens holder. Switch on the autocollimator to position 1 (min. light intensity). Slide the autocollimator tube so that the line seen in the eyepiece has the maximum of contrast, illustration D. Note the difference with respect to the zero of the vernier. This figure, read in mm on the vernier, indicates the value in 0.01 mm by which the thickness of the shims previously used must be varied, so as to obtain the following readings on the vernier scale :

$\boxed{0 \pm 2 \text{ divisions}} = \pm 0.02$ mm

2.4 Adjusting the flange focal distance of the ground glass prism

Remove mirror BJ 1597 and switch on the autocollimator to position 2 (max. light intensity).
Act in reverse order on screw (j) and on screws (l) so as to maintain the parallelism of the prism and to bring the flange focal distance of the ground glass to

$\boxed{\pm 2 \text{ divisions}} = \pm 0.02$ mm

of the reading noted under paragraph 2.3.

Screws (l) to be screwed and (j) blocked through tightening of screw (h).

2.5 Framing

Preparation as per fig. 9, light source at (m).
Focus the magnifying glass BJ 810 on the edges of the prism aperture.
Center the white rectangle in the red one.
To carry out the horizontal adjustment, slightly loosen screws (n) and act with the eccentric screwdriver BJ 1594 in (o).
To carry out the vertical adjustment, slightly loosen screws (p) and act with BJ 1594 in (r). Afterwards tighten (n) and (p).
Should a small parallel defect appear between the 2 apertures, slightly loosen screw (s) and align the ground glass mask (t).

2.6 Film guide (fig. 10)

Gauge BJ 1500x1 must slide in the film guide, but without play. The pressure exerted by spring leaf (u) must be of :

$\boxed{50 \pm 5 \text{ g}}$

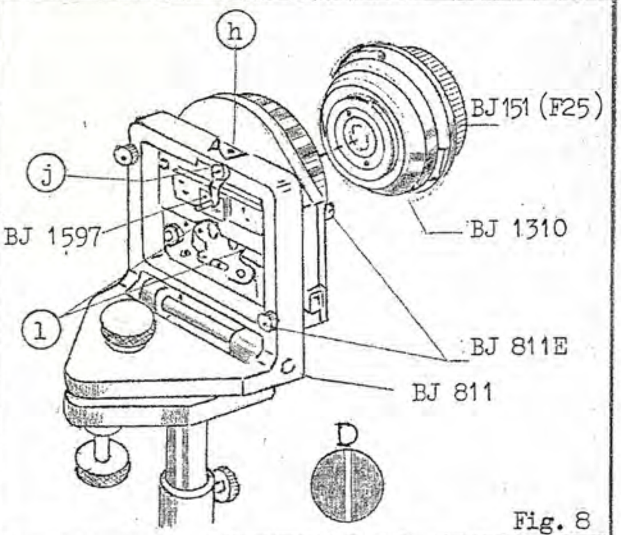

Fig. 8

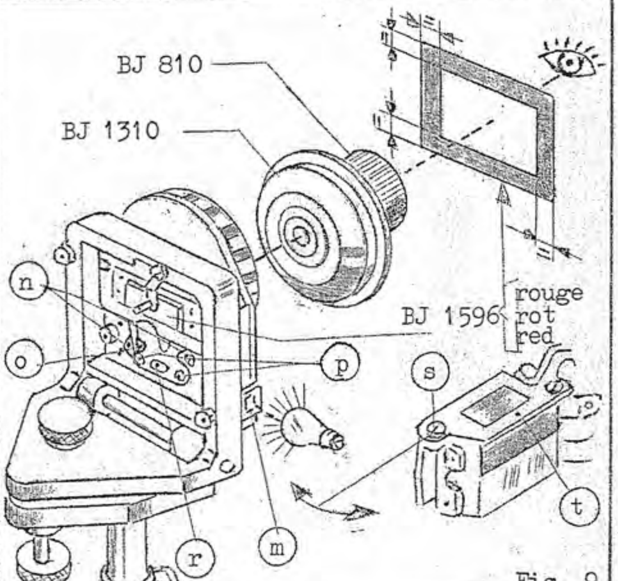

Fig. 9

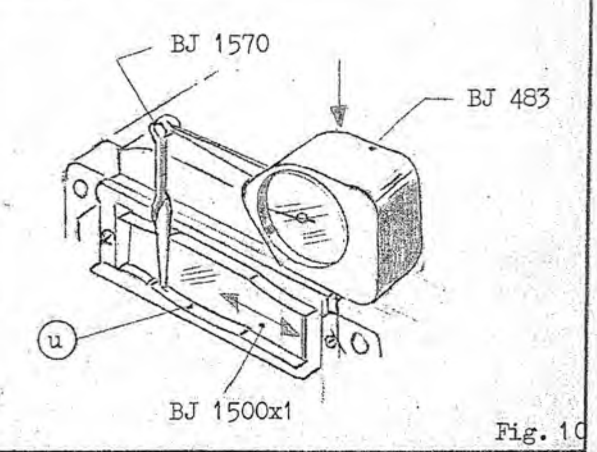

Fig. 1

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3. Variable shutter (fig. 11)

Mount the variable shutter assembly (a) on the lens holder.
Select the necessary shims and spacers so that :
1) lever (b) slides freely and smoothly
2) the pile does not protrude in (c).

3.1 Adjustments

Put control lever (b) in open shutter position (red mark).
On point (x) bring the 2 shutter blades in superposition, however so that the fixed sector is retracted by 1 mm under the upper movable sector. Maintain both sectors and catch the play of the shutter control mechanism by turning the axle in the direction of the arrow. With the 4 screws, fasten the fixed shutter blade to its axle.

3.2 Adjusting the lens holder on the housing

Place pinion (d) on the VS axle as shown in fig. 12.
Fasten pinion very slightly on its axle by means of one single screw.
Mount lens holder on camera, the mechanism of which being stopped as per fig. 13.
The pinion (d) to be used must allow a slight play in the transmission.
When operating the camera frame by frame in position T and by maintaining the button on P, the shutter must stop as per fig. 14.
Remove the lens holder and tighten the 3 screws of pinion (d).
Before mounting the lens holder definitely as previously described, bring the shutter in the position shown in fig. 15. Pinion (d) turns the shutter automatically in the right position as per fig. 14.
Check the free movement of the mechanism by means of the handcrank for the backward motion.
Make sure that the shutter is adequately fastened as per fig. 14, the mechanism being stopped according to fig. 13.

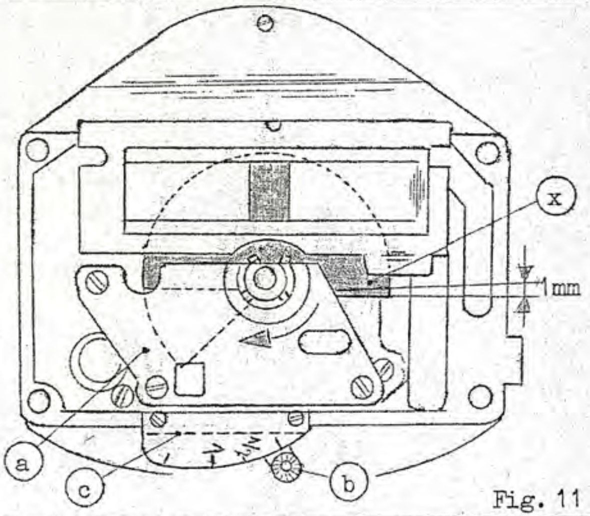

Fig. 11

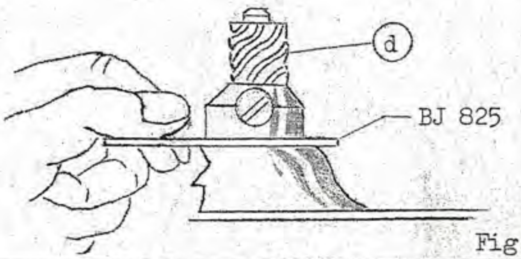

Fig. 12

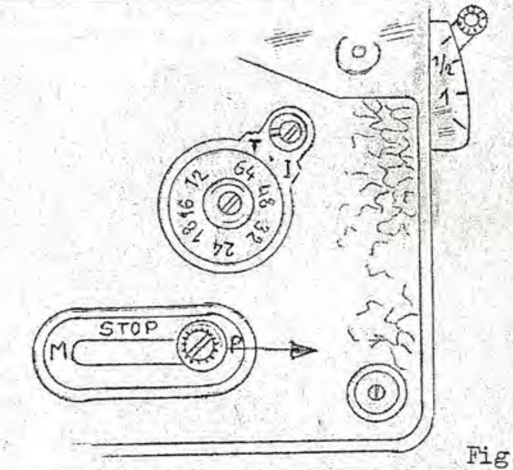

Fig. 13

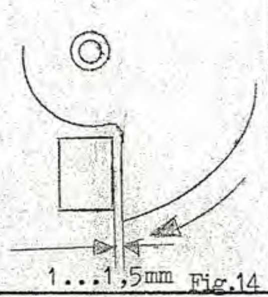

Fig.14

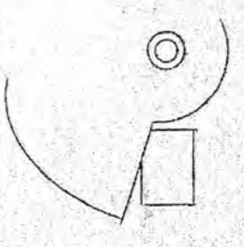
Fig. 15

PD

Viseur reflexe
Reflex-Sucher
Reflex-Viewfinder

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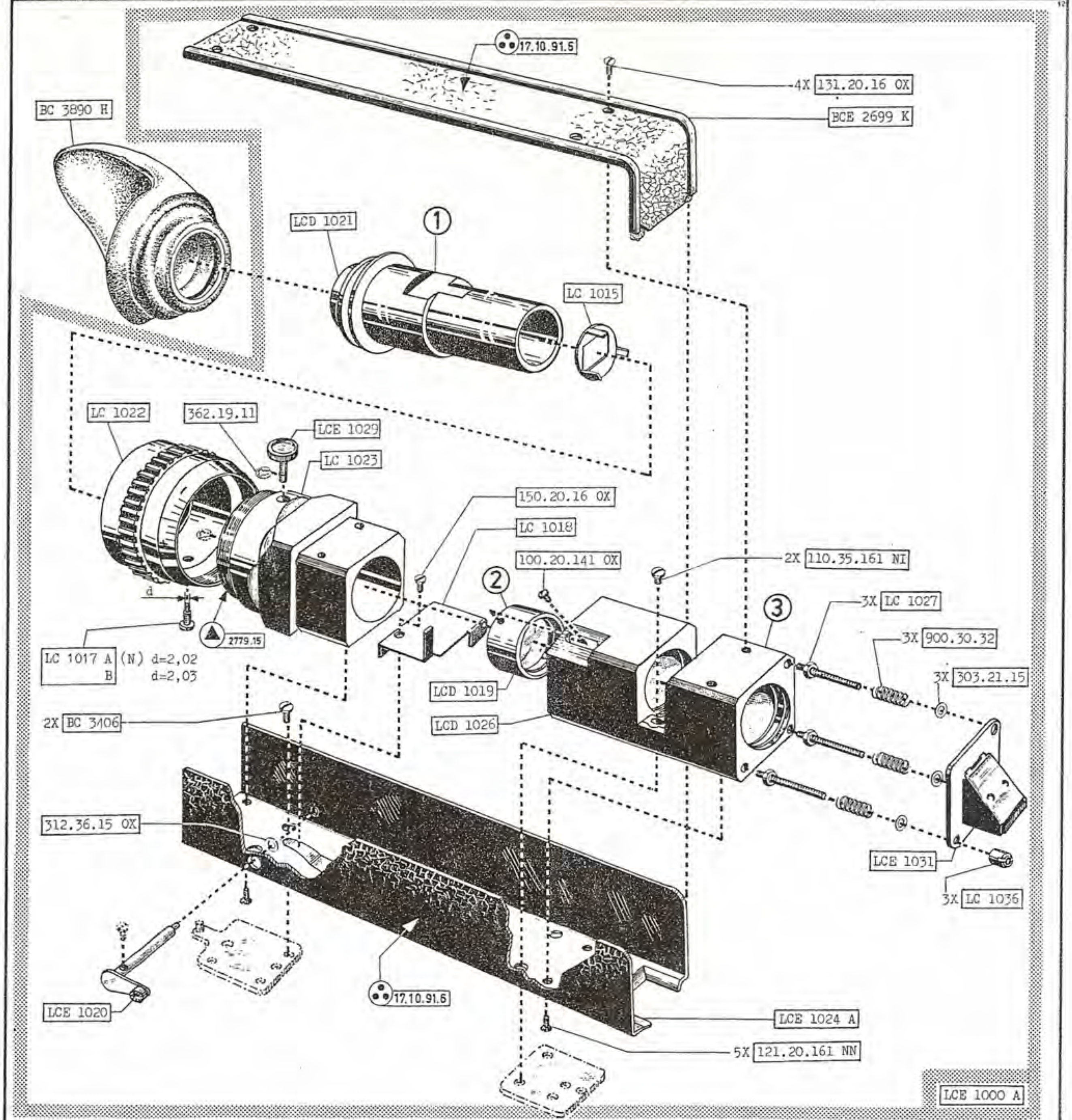

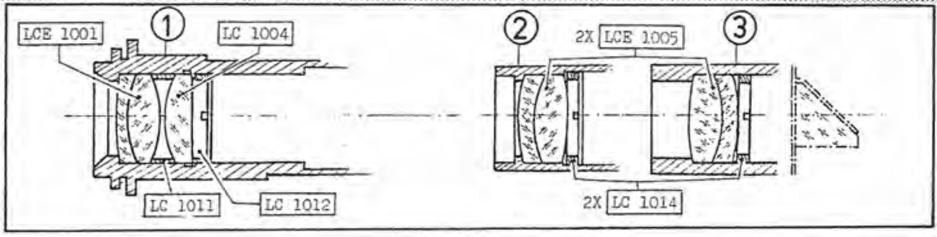

Reflex Viewfinder

1. Reflex viewfinder (fig. 1)

1.1 While adjusting the reflex viewfinder onto the camera housing, pin (b) must engage in the slot (a) of the eyepiece. Introduce the beak of screw (c) in the helicoidal slot of the eyepiece (a) and screw without tightening.
Center the mask inside eyepiece (a) with tool BJ 1043. Align front prism (d) (fig. 2) by acting on the 3 screws (c) until the image reflected by the prism coincides with the mask of the eyepiece, still by maintaining a distance of 9 mm.
Mount the lid.

1.2 Adjusting the eyepiece (fig. 1)

Equip the camera with a standard lens and project a beam of parallel light rays through the lens (e.g. via a projector). Sight the eyepiece with a dioptric tube BJ 1016 which must be adequately aligned and set to infinity. Subsequently turn adjusting ring (h) until the grain of the ground glass screen appears perfectly sharp.
Turn the graduated collar (g) until the line +1 coincides with the mark of adjusting ring (h).
Tighten screws (j).

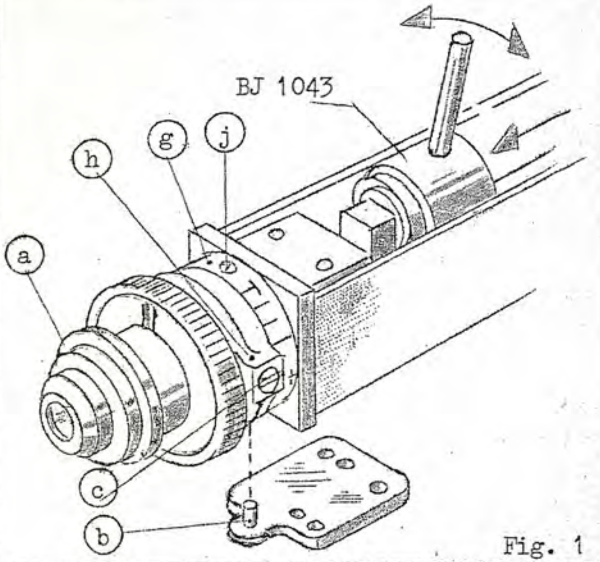

Fig. 1

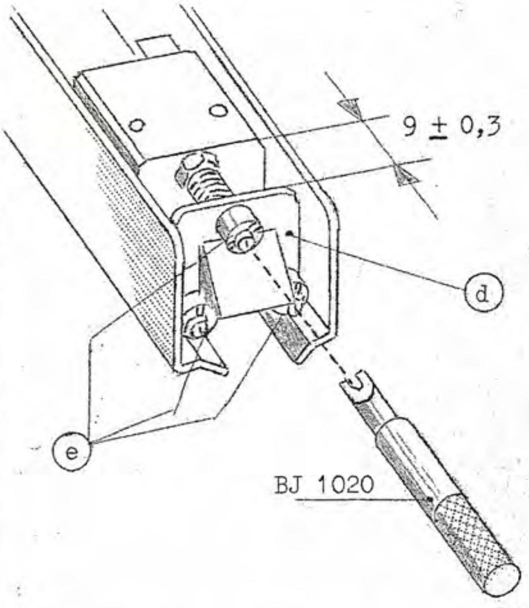

Fig. 2

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PD

Boîtier
Kameragehäuse
Camera body

H16EBM

300 401 ⟶

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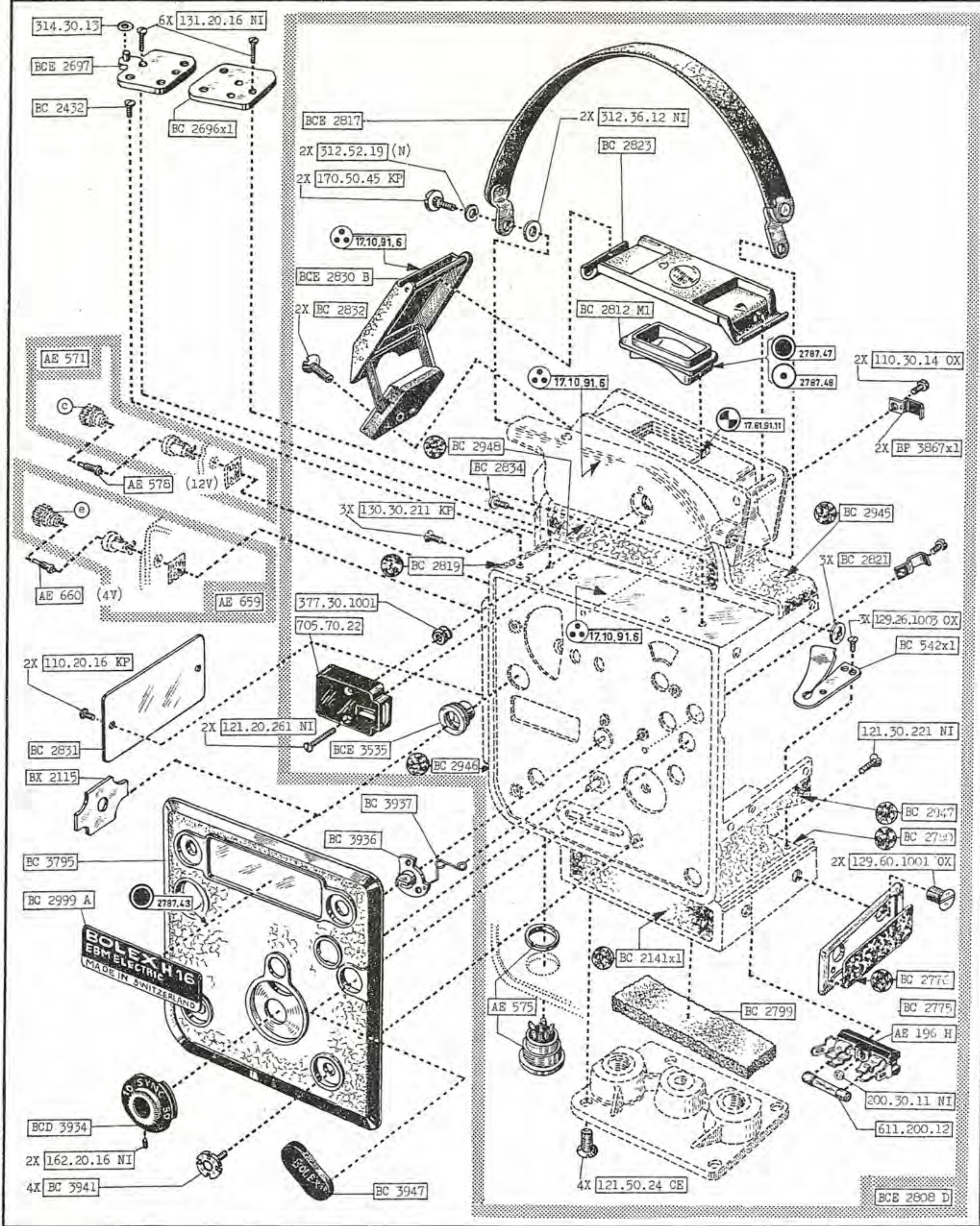

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✳

▨ (F) Gaînages
(D) Belederung
(E) Leathering

● 2787.47
● 2787.48

C

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PD

Couvercle - Manivelle
Deckel - Aufzugskurbel
Lid - Rewinding handle

H16EBM

300 401 ⟹

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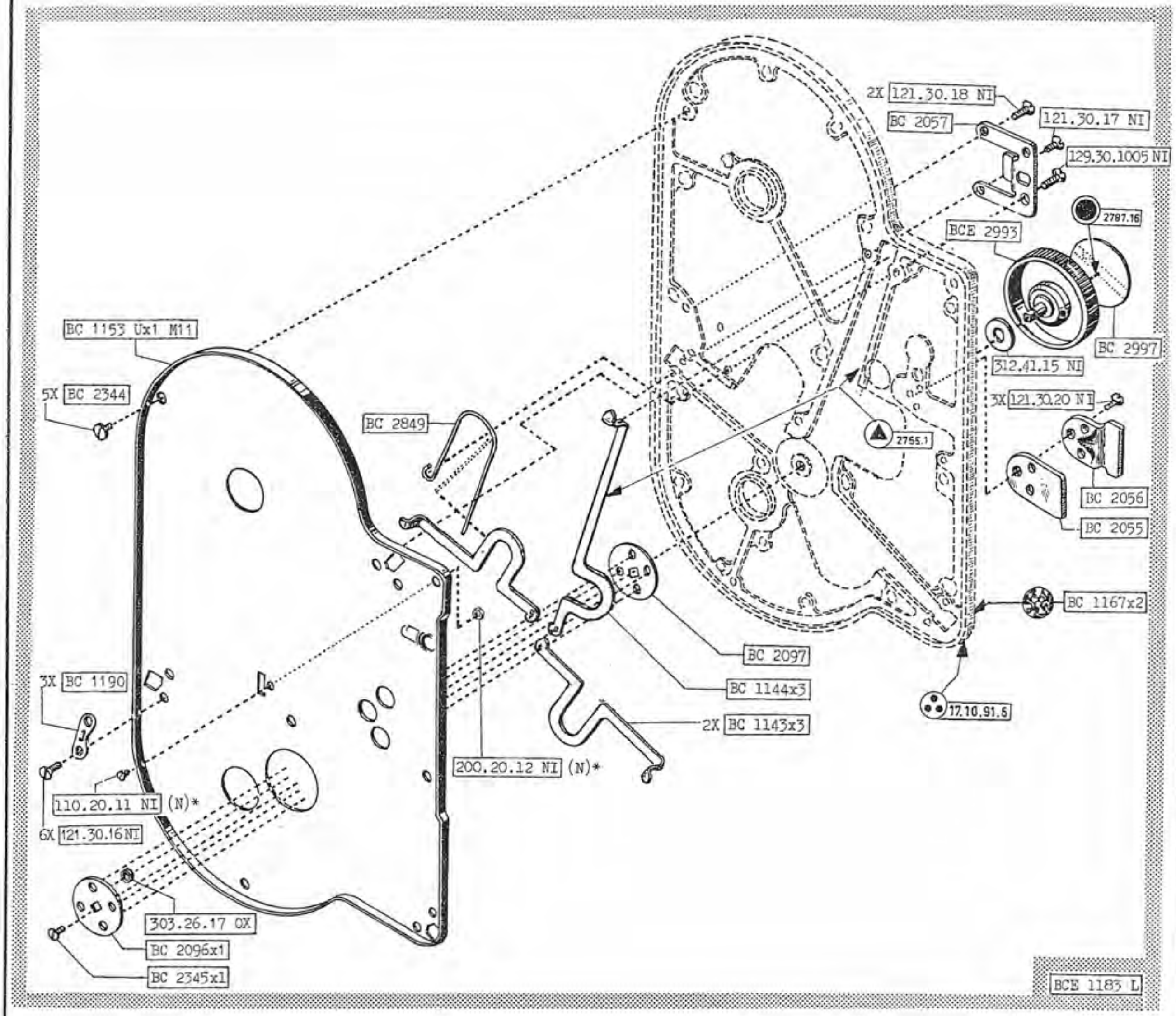

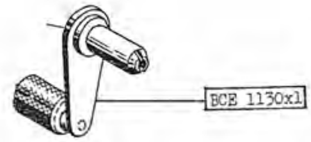

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(F) Gaînages
(D) Belederung
(E) Leathering

2787.47
2787.48

D **1**

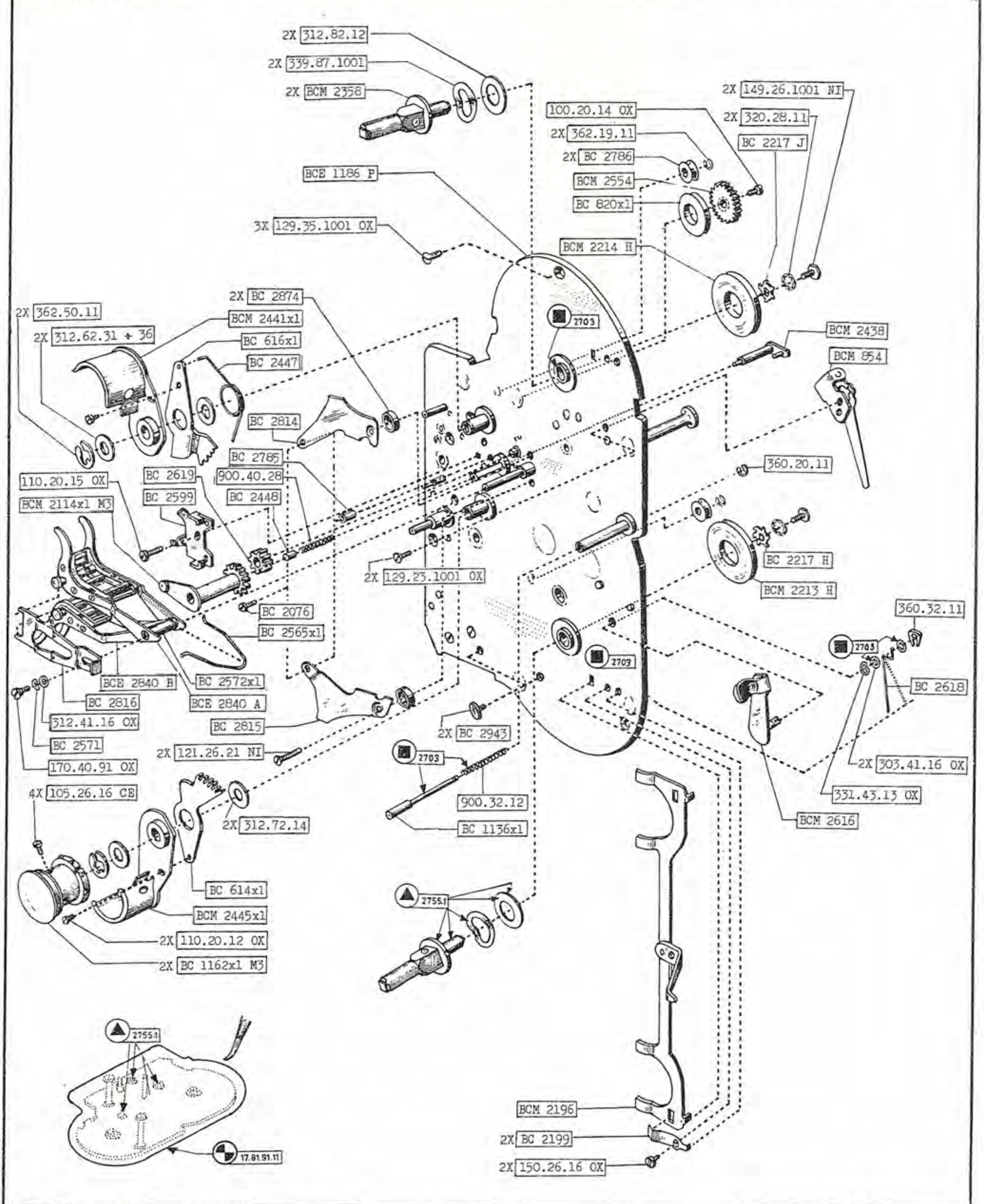
PD

Platine supérieure
Obere Werkplatte
Upper base plate

H16EBM

300 401 →

BOLEX



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Upper Base Plate

1. Upper working plate

1.1 Sprockets (fig. 1)

Place sprockets (a) in raised position by means of tool BJ 1503 and slightly tighten one screw (b) in view of the adjustment of the automatic loading.

1.2 Loop formers (fig. 1)

Loosen the 2 screws (d) and bring lever (c) in open position of the loop formers.
Position and let the lower loop former (e) rest against the film gate and place the upper loop former (g) at short distance of the inclined plane of the film gate. Tighten screws (d).

1.3 Automatic loading (fig. 2)

Preparation as per fig. 2, camera mounted.
Disengage the motor clutch, set the lateral release button on M.
Operate the mechanism with the handcrank.
Load on a length of film previously cut with the built-in cutter.
The film must be guided by the loop former into a longitudinal position, so that the claw easily enters the film perforation. Adjust if necessary by modifying the angular position of the upper sprocket.
When guided by the lower loop former, the film must engage freely with the sprocket teeth without displacing the sprocket guide. Adjust if necessary by modifying the angular position of the lower sprocket.
Carry out several test loadings at a speed of 18 f./s.
The film must feed through the camera freely without jamming nor catching.
When the loop formers are open, the loops must keep their original shape, no matter whether the camera is operated in forward or reverse motion.

1.4 Sprocket guides (fig. 3)

Act with tool BJ 824 on the column of each sprocket guide so as to obtain a space of 2 film plies from the sprocket.

1.5 Spool axle (fig. 4)

The torque at the lower spool take-up spindle measured in forward motion at 18 f./s and of the upper spool axle measured in reverse motion on pulley BJ 1703 must be of :

$$\boxed{100^{+20}_{-40}\ \text{g}}$$

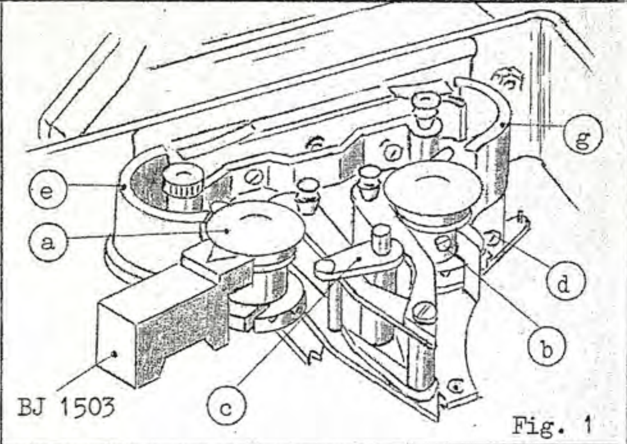


Fig. 1

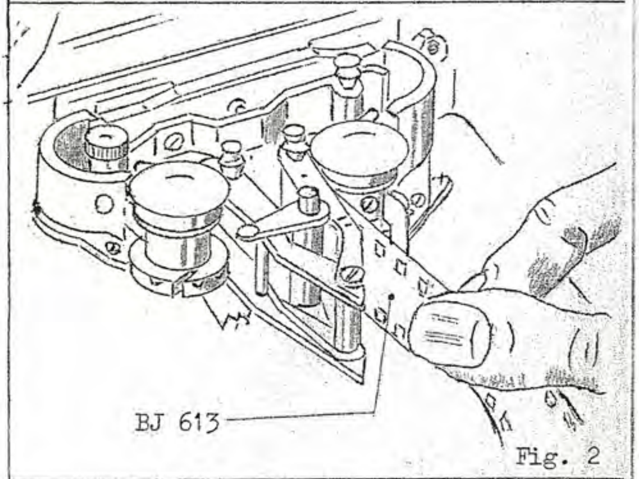


Fig. 2

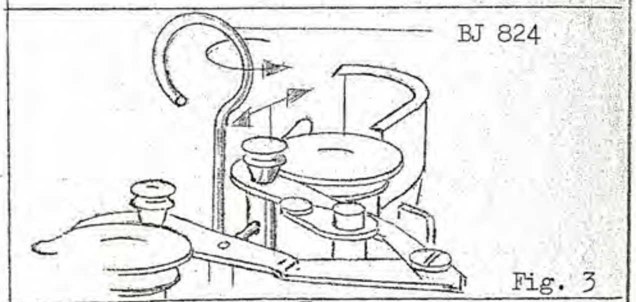


Fig. 3

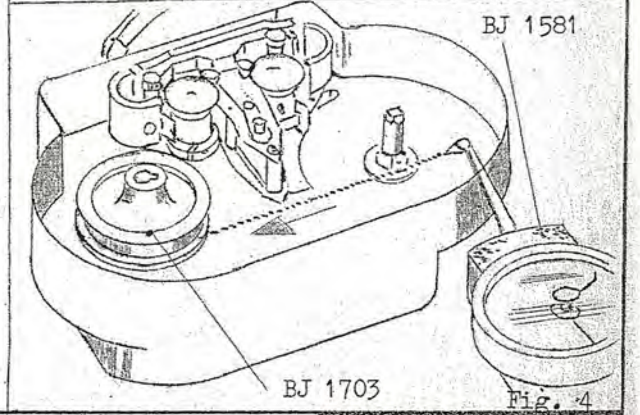
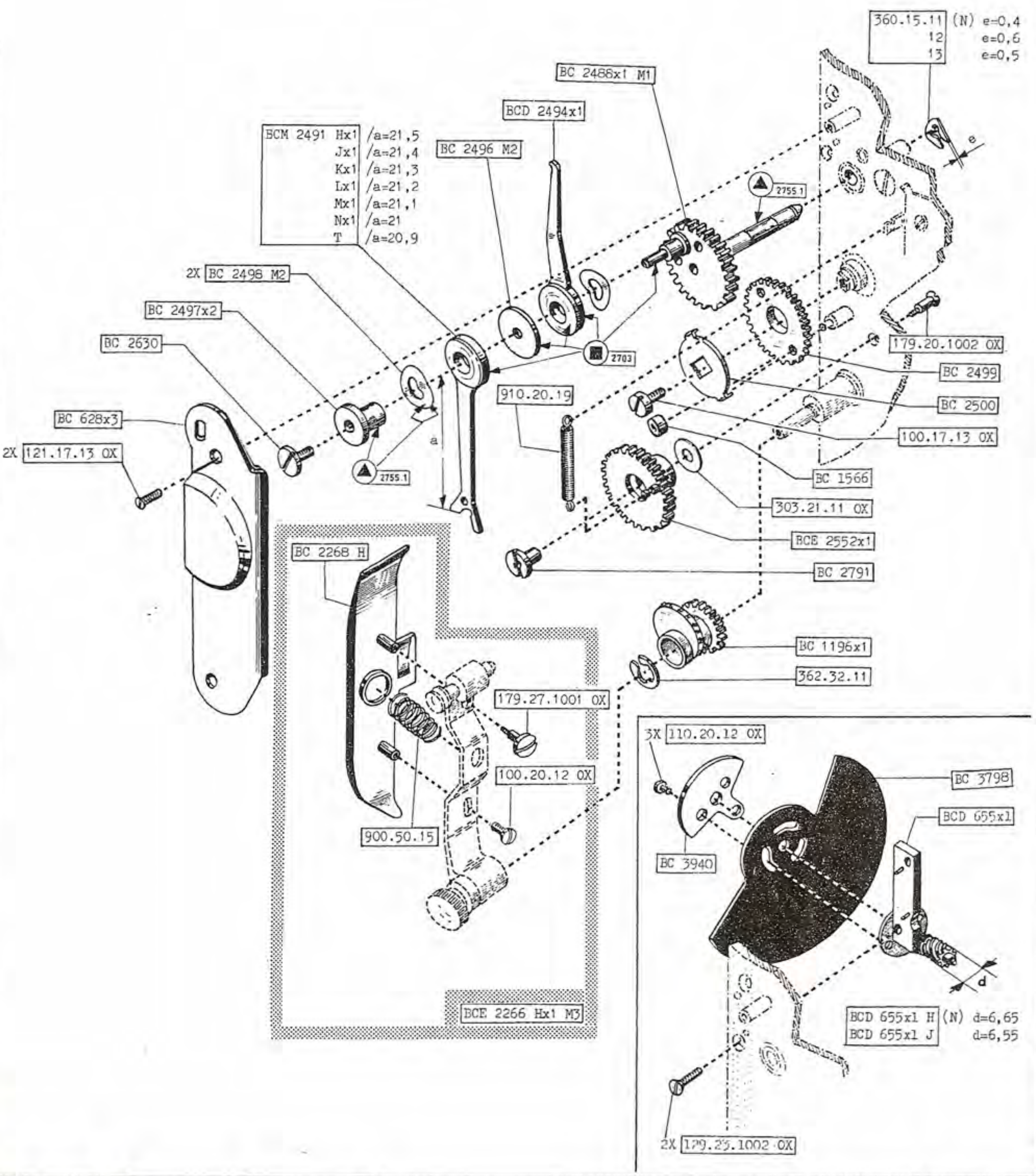


Fig. 4

PD	Griffe Volet presseur Greifer Filmandruckplatte Claw Pressure pad	H16EBM 300 401 ⟹	BOLEX



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H3 EBM	06.71	*		**F**	**1**

Claw - Pressure Pad

1. Claw

1.1 Adjusting the framing (fig. 1)

Insert the test pressure pad BJ 1514x1 in place of the normal pad.
Load the camera with a length of test film.
Light up the taking aperture from the outside.
Seen from the inside, the edges of the aperture must lie at equal distance from the middle of the perforation when the claw retracts.
In case of need, select the correct claw in order to achieve the adjustment.

1.2 Friction torque of the claws on the film (fig. 2)

While refitting the claw assembly onto the eccentric axle, adjust the friction torque on the film by means of the spring washers and run in the assembly by operating the camera for about 10 times of the spring motor capacity.
Place the claw assembly on platform H16 of tool BJ 1572 M1.
Rotate the disk in the direction of the red or white arrow, depending on which of the forward or backward motion claw is checked, on which occasion these must rest against the feeler of the dynamometer.
The friction torque shown by the dynamometer must be of

11 ± 2 g

- for the forward motion claw, and

7 ± 1 g

- for the backward motion one.

This checking may also be carried out when the camera is mounted. For this purpose, remove the claw protection.
Disengage the mechanism so as to operate the camera with the handcrank for reverse motion.
Place tool BJ 1572 M1 onto the camera as per fig. 3, so that the feeler of the dynamometer lies :
- opposite the forward motion claw (a)
- opposite the backward motion claw (b).

This checking may be effected by simply rotating the dynamometer, so that the claw moves freely in front of the film gate.

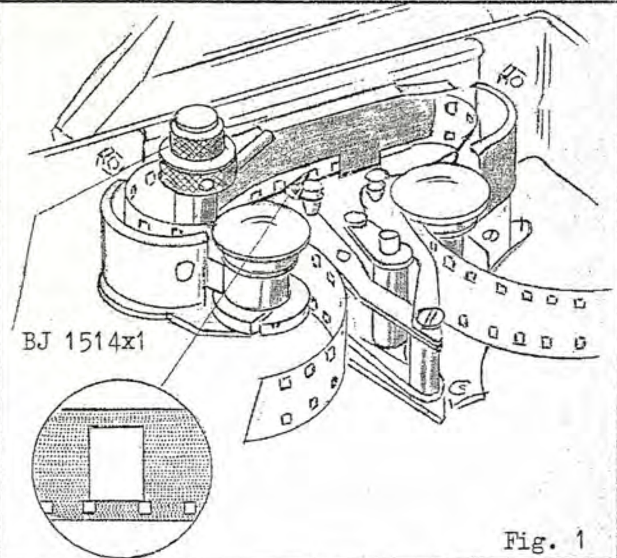


Fig. 1

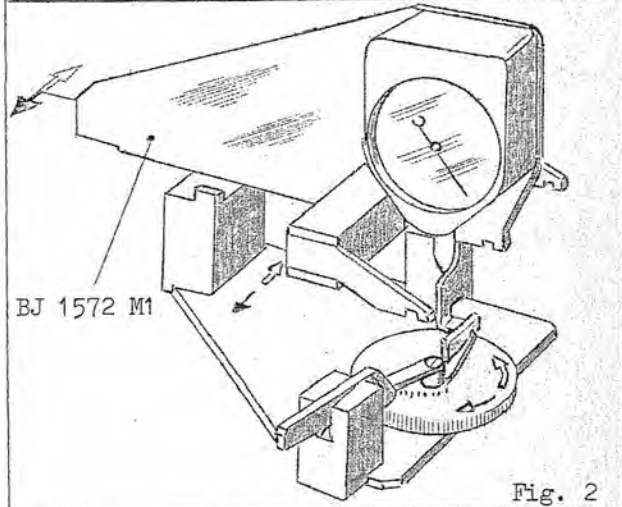


Fig. 2

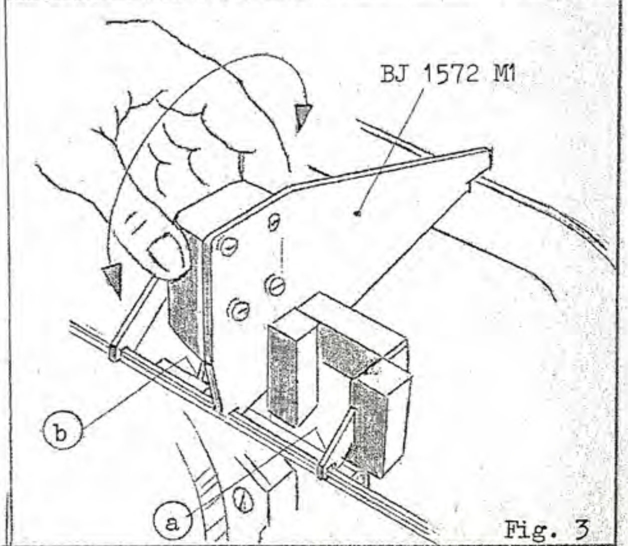


Fig. 3

1.3 Fastening the forward motion claw (fig. 4)

Install the eccentric shaft (c) and adjust the axial play to 0.05 mm.
Wind the spring motor a few turns and operate the camera through the frontal release knob.
Fit the nylon gear (a) and the washer with the square-shaped hole (b), making sure that the eccentric (c) is inclined as per sketch.
The angle displacement (d) must be of 1 tooth.

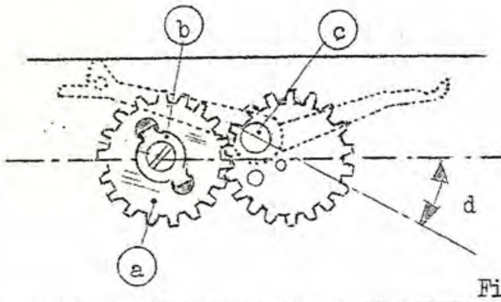


Fig. 4

1.4 Lateral centering of the claws (fig. 5)

State of the camera as above.
Move screw (a) by means of a screwdriver until the eccentric axle gets in extreme right hand position.
Pull both claws backwards.
Insert gauge BJ 1121 between the lateral film guides into gate, so that edge (k) lies opposite the housing seam.
Center the tip of the forward motion claw by slightly twisting with tool BJ 1129, so that it runs for a full cycle in the calibrated slot (c) between points (e) and (f).
Similar centering of the backward motion claw between points (g) and (h) of calibrated slot (d).

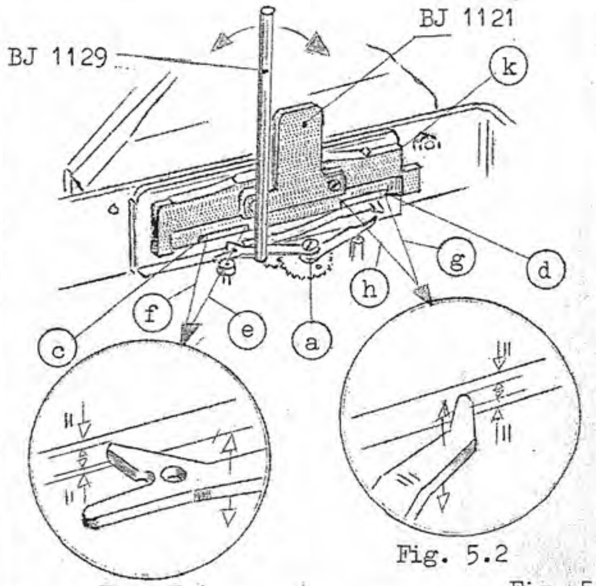


Fig. 5.1

Fig. 5.2

Fig. 5

1.5 Loop catcher (fig. 6)

Wind the spring motor a few turns and operate the camera through the frontal release knob.
Set loop former (l) on toothed wheel (m) at an angle of 15...45° which corresponds to 1 to 3 teeth of the toothing.
The loop catcher must move freely and reform a loop after 2 lost images.

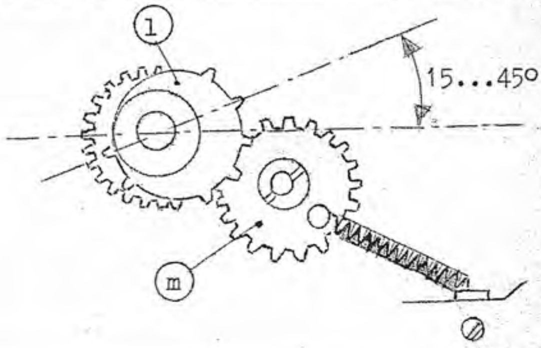


Fig. 6

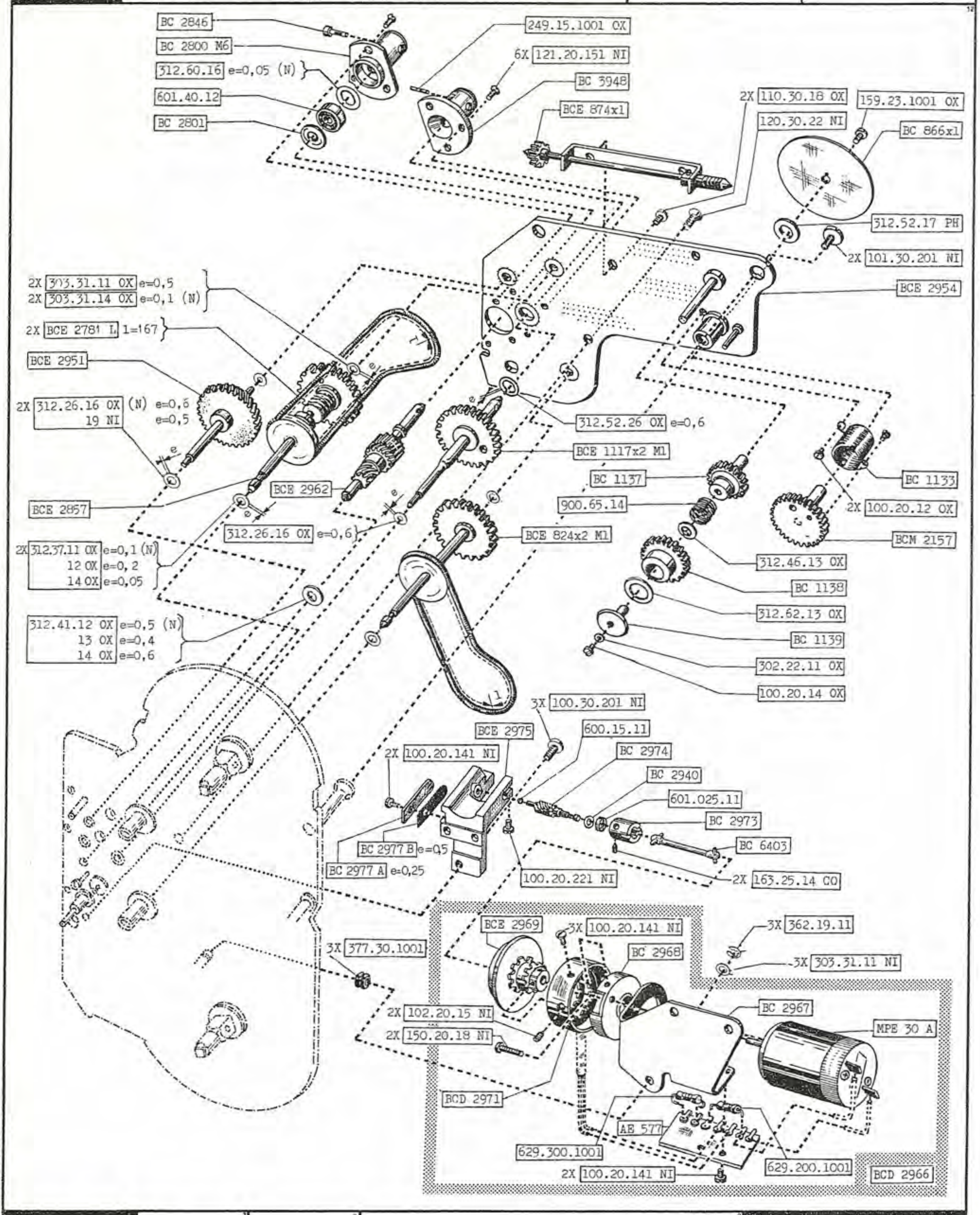
PD

Mécanisme - Moteur
Mechanismus-Motor
Mechanism - Motor

H16EBM

300 401 ⟹

BOLEX



H3
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06.71

*

(F) Tous les engrenages et pivots sont graissés avec
(D) Fetten aller Zahnräder und Stifte mit
(E) Grease all gears and pins with
} ▲ 2755 1

G

1

1. Separating the working plates

Prior to this operation, let the motor spring run down completely after having disengaged pinion (a) (fig. 3) which connects the spring motor to gear wheel (b).

2. Assembling the working plates

The various components of the complete drive mechanism are held in place by the upper and lower working plates. For the assembling, prepare :

- The upper working plate as per fig. 1, without speed governor.
- The lower working plate as per fig. 2, without the control axle of footage counter.
- Adjust the axial play to 0.05 mm by means of the necessary washers.
- Use hook BJ 1521 to connect the belt of the lower sprocket axle to the pulley of the lower spool axle.

3. Aligning the spring motor (fig. 3)

For this alignment, the mechanism must be completely assembled.

- Separate pinion (a) from gear wheel (b).
- Fully wind the spring motor and let it run down just one revolution.
- Hold the mechanism via the stopping axle.
- Turn gear wheel (b) fully home to the stop, direction as per arrow.
- Engage pinion (a) into gear wheel (b) and insert clip (d).
- Free the mechanism and check that the spring motor makes

8 revolutions

4. Clutch mechanism (fig. 4)

In the "engaged" position, the fork must be able to swivel freely.

In "disengaged" position, teeth (g) must separate completely from teeth (h).

Adjustment is to be done by slightly bending fork (e) in the appropriate direction by means of twister BJ 1502.

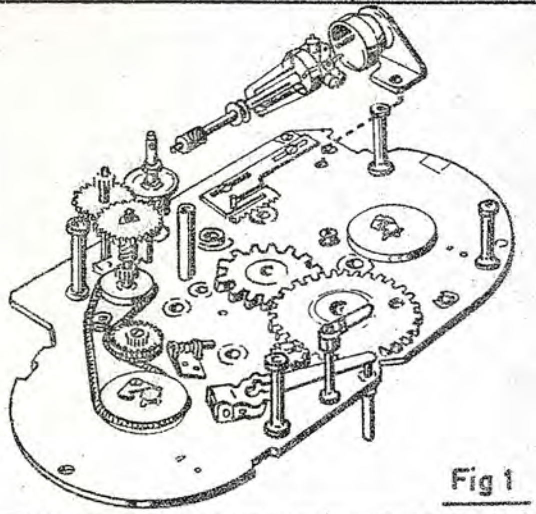


Fig 1

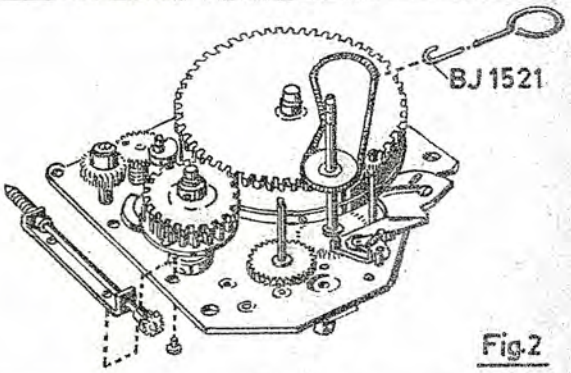


Fig.2

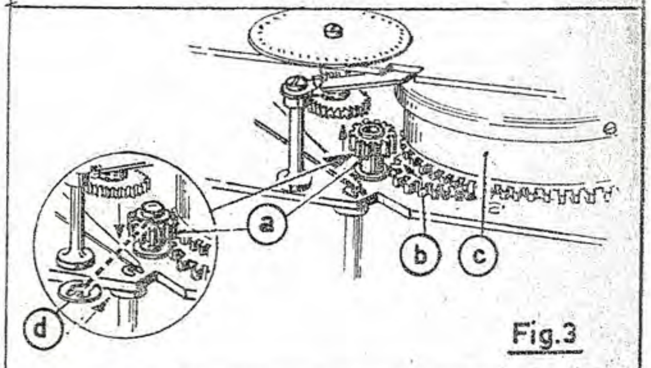


Fig.3

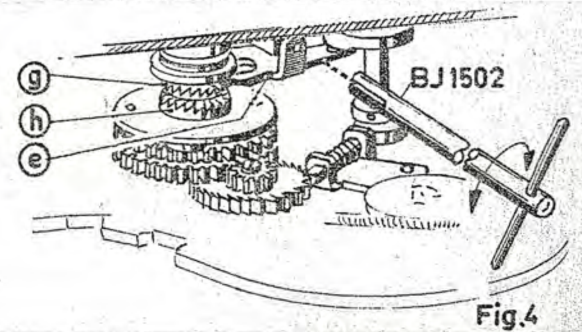


Fig.4

5. Resistant torque of the mechanism (fig. 5)

This measurement is to be carried out by means of pulley BJ 1508x1 placed on the handcrank axle with dynamometer BJ 703, as well as the claws retaining plate BJ 1568.
The maximum values accepted are as follows :
- mechanism complete without claw = 130 g
- mechanism complete with claw = 320 g
- camera complete = 320 g

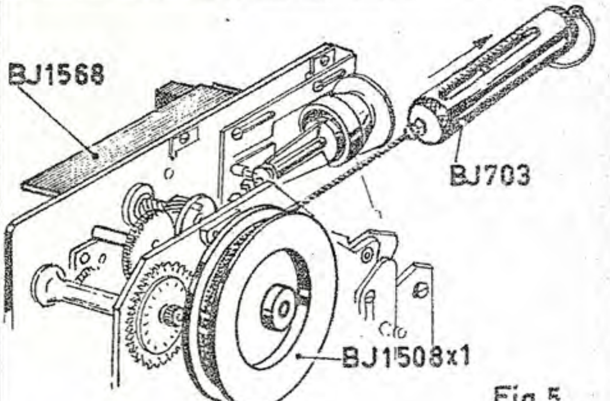


Fig.5

6. Adjusting the speed

Preparation of the mechanism as per chapter 2, outside of the housing. To carry out the operation, adjust the governor drags in high position so as to reach the speed of 64 f./s on the stroboscop disk mounted on the handcrank axle, as per fig. 8.
Use tool BJ 1579 M1 for the adjustment with the file or with machine BJ 1109 which provides for the adjustment through dynamic milling.
See the corresponding IT sheet in catalogue OU.

Fig. 6

At the beginning of the adjustment, apply a very thin layer of Molykote powder BJ 1058 with a small brush on the drags at (g), as well as at the annular surface (h) of the bell.
Fit the governor into the camera, wind the spring motor fully and let it run down completely.
Repeat this 3 times at the highest came a speed. Having completed the adjustment of the running speed of 64 f./s, remove the governor and clean the annular surface of the bell at (h) with a soft cloth.
The Molykote powder must remain on the drags at (g).
Caution : The governors dry-lubricated with Molykote powder **must on no account be oiled.**

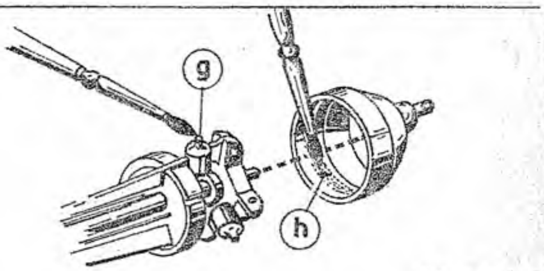


Fig.6

Fig. 7

Fit the governor into the camera.
- Adjust the speed 64 f./s with stop (o).
- Adjust the speed 12 f./s with stop (m).

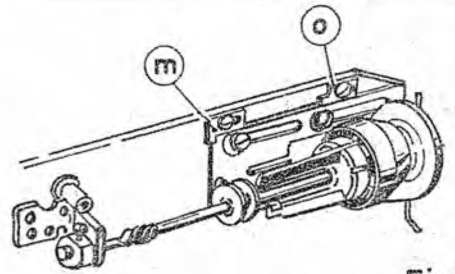
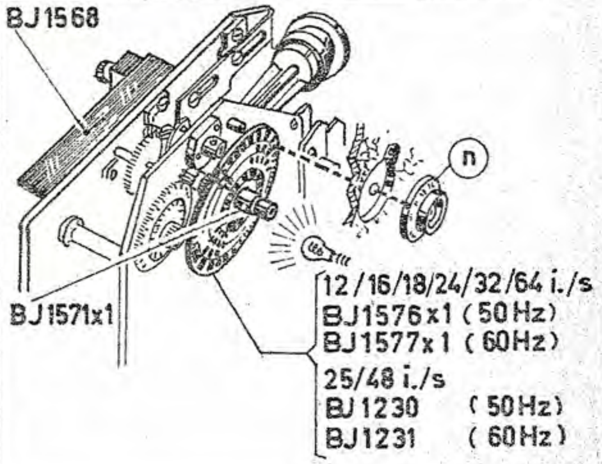


Fig.7

7. Calibrating the speed setting knob (fig. 8)

On the complete camera loaded with a test film, place the respective stroboscop disk comprising both a minimum and a maximum scale, allowing the adjustment of the speed setting knob.
There are 3 engraved and 1 virgin speed knobs.



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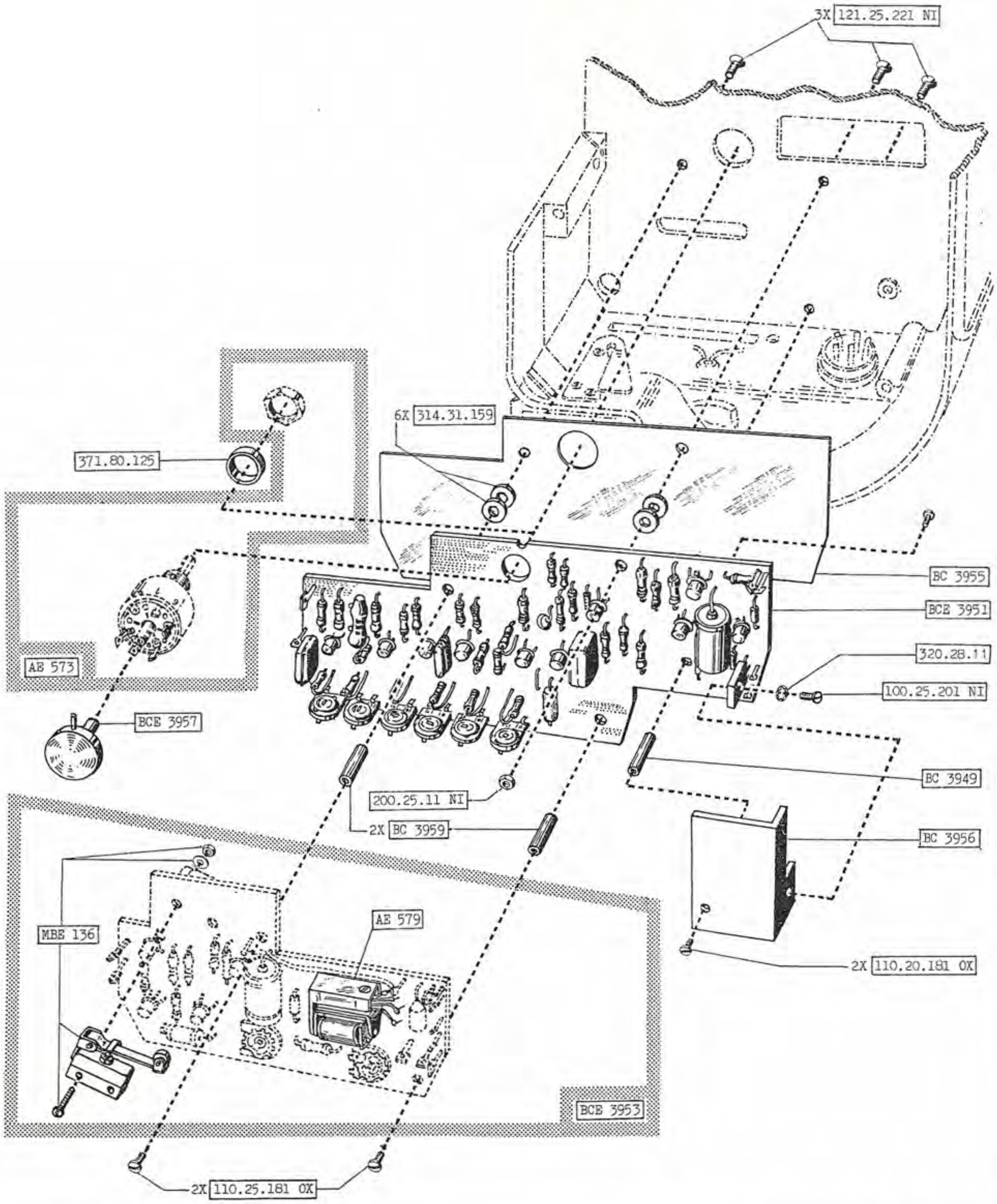
PD

Circuits électroniques
Elektronische Schaltungen
Electronic circuits

H16EBM

300 401 ⟹

BOLEX



Lower Base Plate

1. Counter (fig. 1)

1.1 The footage counter is driven by the upper sprocket axle via the clutch control spindle (a).
Leave a slight play between the gears.
Load the counter recall spring by about one turn.
The counter automatically returns to zero when the camera is opened, and the m or ft mark must coincide with the line of the dial window.

1.2 The sound counter functions when arm (c) beats the screws of spring motor when lever (d) is positioned as shown on the sketch.

1.3 On the frame counter, the 100s disk (f) must be driven regularly and advance by one 50 frames mark for one turn of the unit disk (e), in whichever direction.

2. Release system

The release system controls :
- the intermittent operation
- the continuous running
- the frame-by-frame operation, snapshot and time exposures.

Check the functioning :
- of the front release button which must return to its original position assoon as finger pressure is relaxed
- of the lateral release button which remain caught in when it is set to position "M" and return to its original position when finger pressure is relaxed, when set to position "P".

3. Driving axles (fig. 2)

Use pincers BJ 1240 which matches with the shaft end into which the pin has to be fitted and allows the latter to be engaged without exerting any force on the 8:1 and 1:1 shafts.
- Pusher A for driving out the pins
- Pusher B for driving in the pins
- Pusher C for fitting and positioning the asymmetric pin on the 1:1 drive shaft.

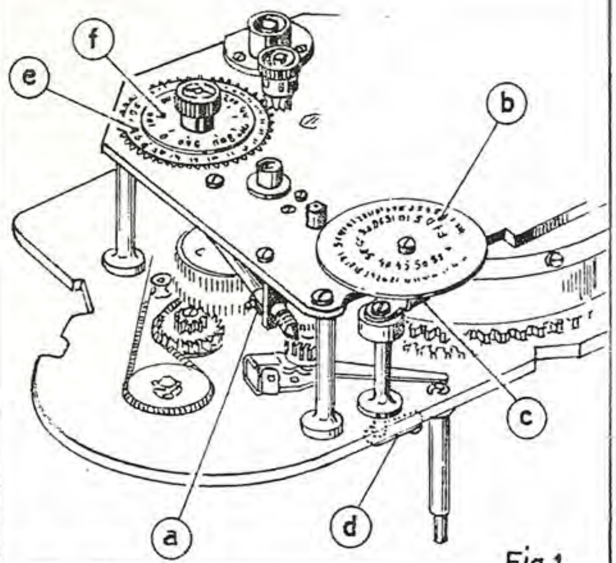


Fig.1

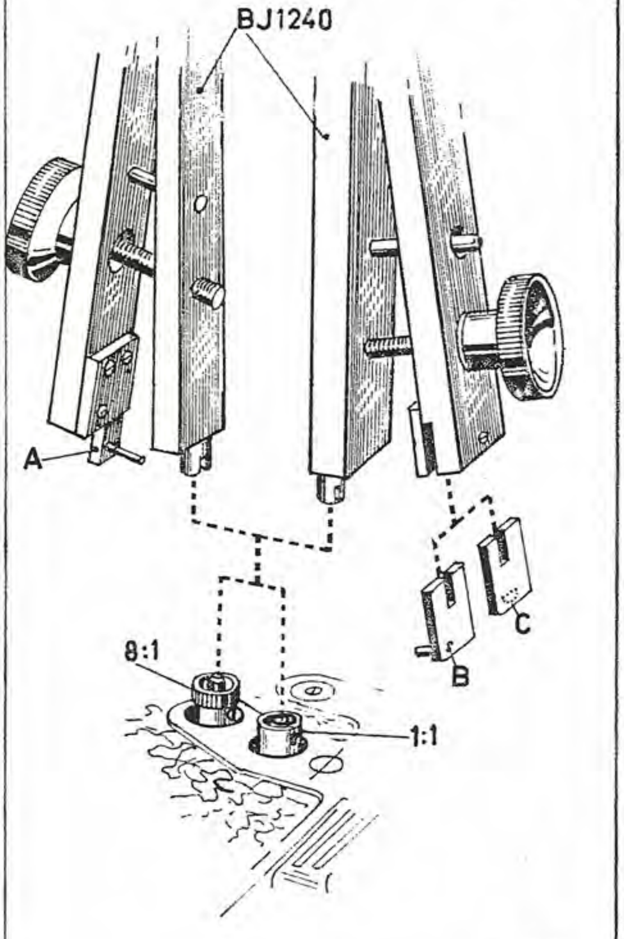


Fig.2

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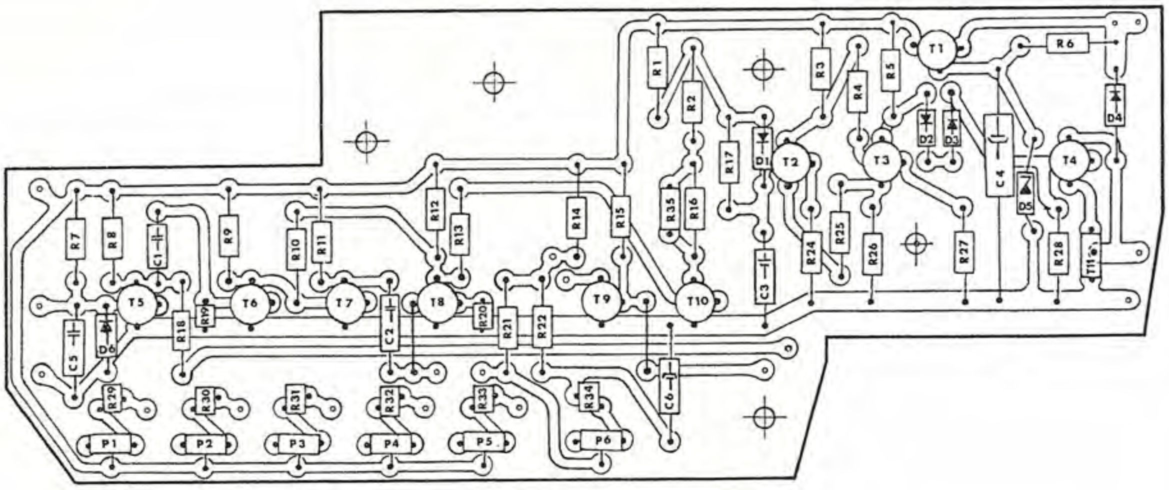

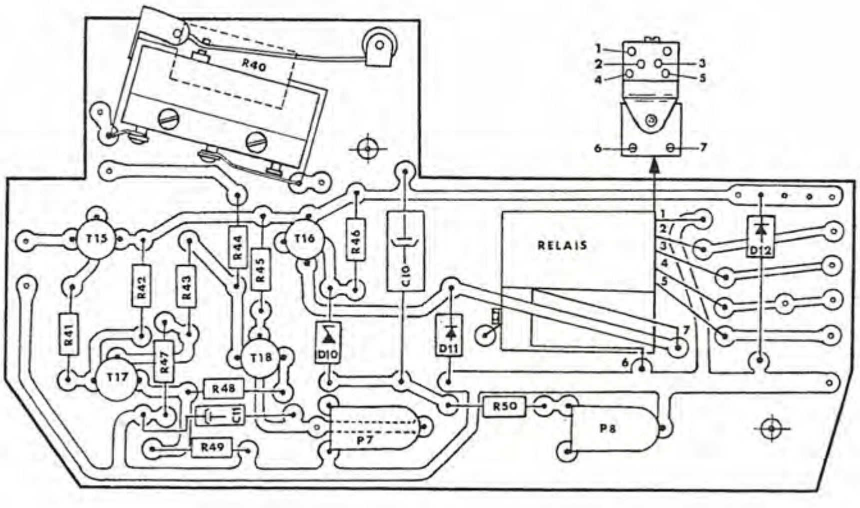

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Circuits électroniques
Elektronische Schaltungen
Electronic circuits

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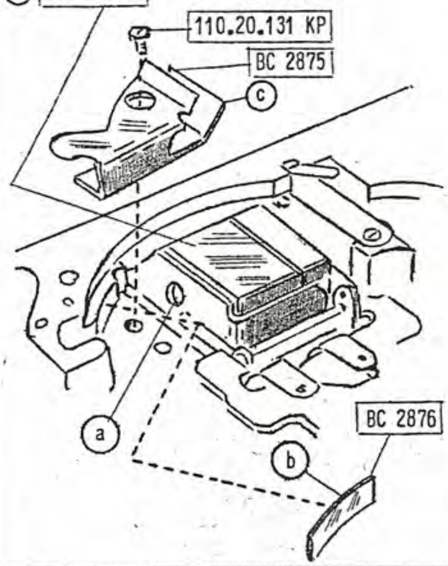
Composants électriques : Résistances
Elektrische Bestandteile : Widerstände
Electrical components : Resistors

Tolérance générale :
Allgemeine Toleranz :
General tolerance :

± 5 % * ± 10 %

Valeur Wert Value [Ω]	Puissance Leistung Power [W]	No. de commande Ersatzteil-Nr. Part-No.		No. Nr. No.
18	5,5	631.180.11	*	R 40
150	0,25	623.151.15		R 49
150	"	639.151.1001		R 35
270	"	623.271.15		R 25-26-50
680	"	623.681.15		R 6
820	"	623.821.15		R 48
1 K	"	623.102.15		R 2-3-5-11-14-28
1,5 K	"	623.151.15		R 46
2,2 K	"	623.222.15		R 23
2,7 K	"	623.272.15		R 27-47
3,3 K	"	623.332.15		R 4
3,9 K	"	623.392.15		R 42-43-44
4,7 K	"	623.472.15		R 9-12-16
5,6 K	"	623.562.15		R 17
6,8 K	"	623.682.15		R 8
8,2 K	"	623.822.15		R 1
15 K	"	623.153.15		R 22-41
22 K	"	623.223.15		R 13-45
27 K	"	623.273.15		R 7-18
33 K	"	623.333.15		R 29
82 K	"	623.823.15	*	R 20
100 K	"	623.104.15		R 19-24-30-31
120 K	"	623.124.15		R 34
150 K	"	623.154.15		R 32
220 K	"	623.224.15		R 10-21
330 K	"	623.334.15		R 15-33
2,2 K	–	681.15.11		P 8
4,7 K	–	681.15.12		P 7
25 K	–	681.18.11		P 1-2-3
50 K	–	681.18.12		P 4-5-6

FM	Porte-objectif Objektivhalter Lens Holder	H16SB / SBM 300 001 →	

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1		BCD 3509 M a=6,85 (N)	(F) Engrenage supplémentaire d'un taillage plus grand. (D) Zusätzliches Zahnrad mit grösserer Zahnform. (E) Additional gear wheel with bigger tooth formation. 05.71
2	① (BCM 3419x1 M2 †)	② BCD 3419x1 300 251 → 	(F) Le trou de lumière sur le porte-prisme en (a) est supprimé, retour à l'ancien prisme. Introduction d'un réflecteur autocollant (b) et d'un réflecteur guide-lumière (c). (D) Die Lichtöffnung an (a) auf der Prismenfassung ist aufgehoben, woher die Verwendung des älteren Prismas. Einführung eines selbstklebenden Reflektors (b) sowie eines Lichtführungs-Reflektors (c). (E) The light aperture (a) on the prism mount is eliminated, hence the use of the old prism. Introduction of a self-sealing reflector (b) as well as of a light guiding reflector (c). 05.71
3	3X (110.20.141 KP †)	3X 110.20.131 KP	(F) Nomenclature modifiée (D) Teilnummernänderung (E) Part-number modification 05.71

FM	Griffe volet presseur Greifer Filmandruckplatte Claw Pressure pad	H16 251 501 →	Bolex paillard

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1	▲ ~~2755.1~~	▨ 2703 No. 254 001 →	(F) Modification du graissage des frictions des griffes marche avant et arrière, la graisse 2755.1 est remplacée par l'huile 2703. (D) Aenderung des Schmiermittels für den Vorder- bzw. Ruckwärtsgreifer. Fett 2755.1 wird durch Oel 2703 ersetzt. (E) Lubrification of forward and backward motion claws modified : grease 2755.1 replaced by oil 2703. 06.71

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Circuits électroniques
Elektronische Schaltungen
Electronic circuits

H 16 EBM

300 401 →

BOLEX

Condensateurs - Kondensatoren - Capacitors

Valeur Wert Value [F]	Tension de service Betriebsspannung Operating voltage [V]	No. de commande Ersatzteil-Nr. Part-No.	No. Nr. No.	Tolérances Toleranzen Tolerances
2,2 n	500	651.222.500	C1	± 20 %
10 n	250	649.103.1001	C2	± 10 %
220 n		648.224.11	C5	
680 n	63	648.684.12	C3	± 20 %
6,8 µ	6	653.685.06	C6	± 20 %
20 µ	16	661.206.016	C11	+50 -10 %
200 µ	10	661.207.010	C4 - 10	+50 -10 %

Diodes/Transistors - Dioden/Transistoren - Diodes/Transistors

Type Typ Type	No. de commande Ersatzteil-Nr. Part-No.	No. Nr. No.
1 N 4148	693.001.106	D 1-2-3-6
1 N 4003	693.002.101	D 4-11
20 A 1	693.002.107	D 12
ZF 6,2	693.003.107	D 10
ZF 6,8	693.003.124	D 5
BC 108 B	693.015.118	T 1-2-3-4-6-7-9-10-17-18
BC 109 B	693.015.108	T 5-8
BC 179 B	693.015.117	T 15-16
2 N 5190	693.016.104	T 11

PD

Poignée
Handgriff
Grip

H16EBM

300 401 →

BOLEX

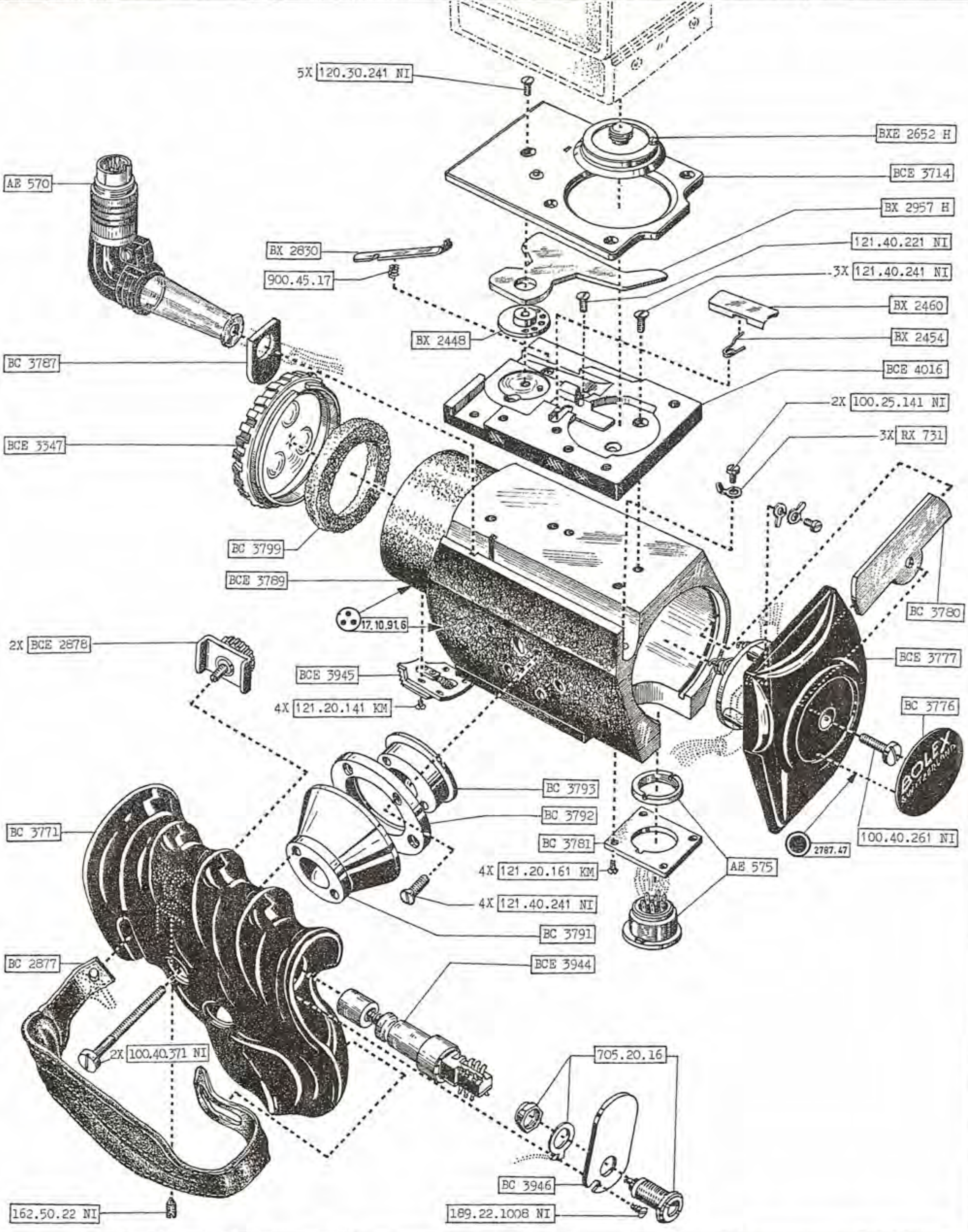

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Schéma électrique
Elektrisches Schema
Electric diagram

H16EBM

300 401 ⟹

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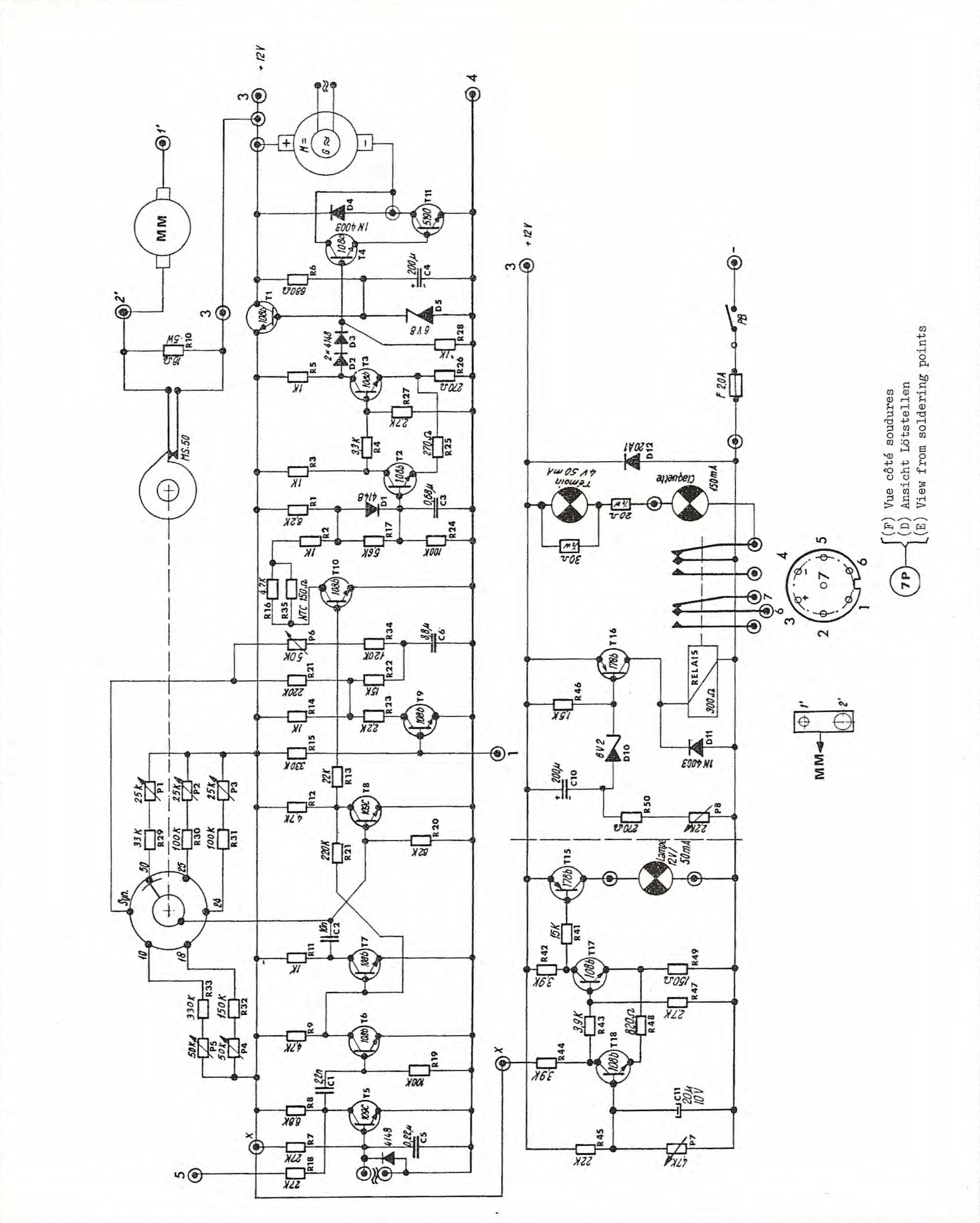

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K **1**

Multifocalviewfinder

1. Assembling the viewfinder

1.1 Fitting the guide rail (fig. 1)

When mounted on the viewfinder, disk (a) must be aligned so that number 50 becomes visible and has a central position which may be obtained by displacing guide rail (b). Tighten screws (c).

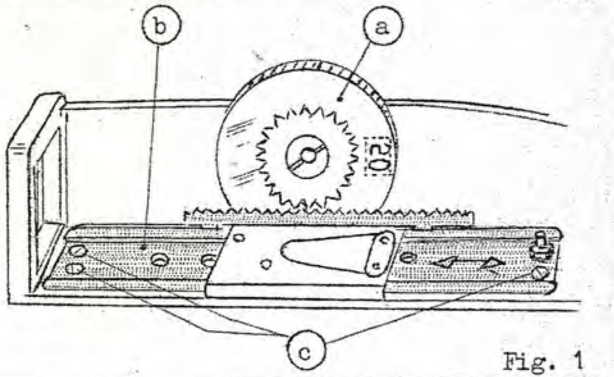

Fig. 1

1.2 Fitting the fixed lens element (fig. 2)

Place tool BJ 1607 and the long gauge into guide rail (b) with a view to positioning the fixed lens element (d) and its support with respect to the front lens element (e).
Progressively tighten screws (g) and precautionously maintain lens element (d) against the gauge.

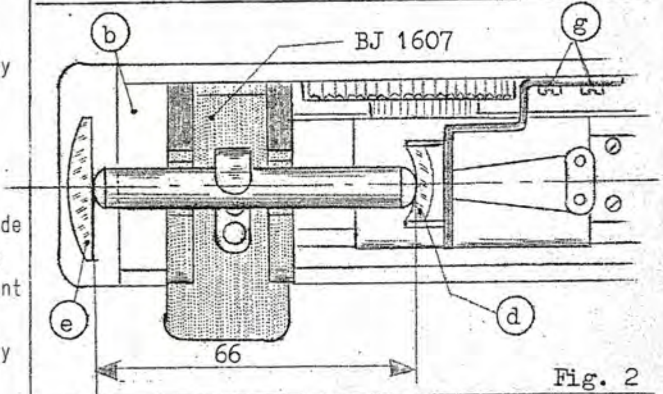

Fig. 2

1.3 Fitting the mobile lens element (fig. 3)

Turn disk (a) to position 50.
Place tool BJ 1607 and the short gauge H16 onto guide rail (b) with a view to positioning the mobile lens element (h) and its support with respect to the front lens element (e).
Progressively tighten screws (g) and precautionously maintain lens element (d) against the gauge.

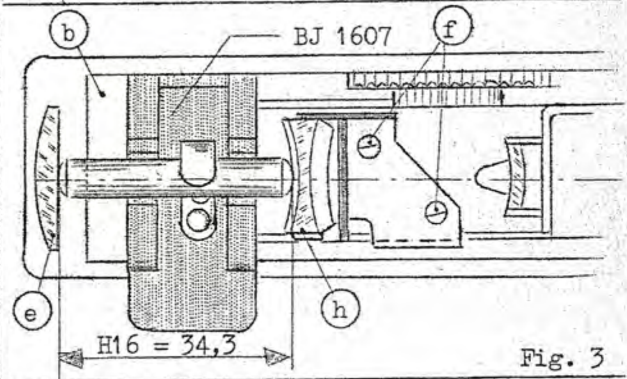

Fig. 3

2. Adjusting the viewfinder on the camera (fig. 4)

- Mount the camera on a steady support in front of a test chart, for instance BJ 159, at a distance of 1.50 m from the film plane.
- Equip the camera with a 75 mm tele lens and focus on the shart.
- Center the taking aperture axis with respect to an horizontal axis which must be at a distance of :

X = 41 mm for cameras with turret holder

X = 73 mm for cameras with bayonet mount

On the right-hand side from the viewfinder axis for the adaptation of the multifocal viewfinder on cameras with bayonet mount, the special intermediary support should be used in consequence of the dimention of the lens holder.

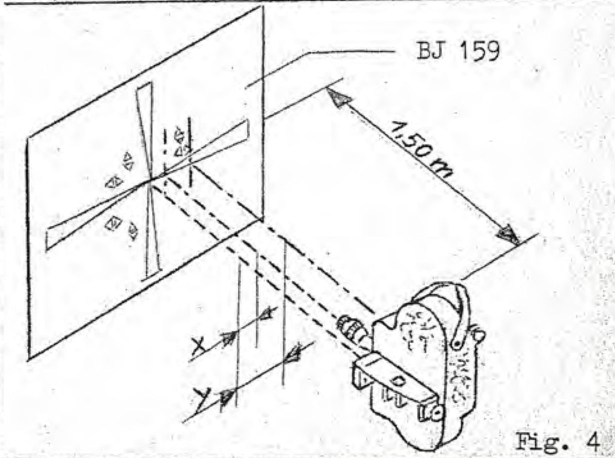

Fig. 4

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2.1 Vertical adjustment (fig. 5)

Set disk (a) of the viewfinder to focal length 75 mm. By slightly loosening screws (k), which can be attained through the 2 holes in the guide rail, the rear part of the viewfinder may be moved vertically so that the horizontal marks (l) visible in the viewfinder coincide with the horizontal axis. Yellow horizontal axis on test chart BJ 159.
Check the alignment at the various focal lengths of the viewfinder.

2.2 Horizontal adjustment (fig. 6)

The inclination of the viewfinder with respect to the horizontal plane consists in setting the viewfinder on infinity, position given by screw (n) resting against rivet (o).
Loosen the locking nut and turn screw (n) with tool BJ 1517 so as to obtain the correct centering of the vertical marks (m) visible in the viewfinder with respect to the vertical axis. Yellow vertical axis on test chart BJ 159.
Check the alignment at the various focal lengths of the viewfinder.

2.3 Adjusting the parallax correcting ring (fig. 7)

Fit the viewfinder cover.
Mount the viewfinder on the camera lid, turn the milled knob (r) fully to the right-hand side and align the graduated ring (s), the infinity mark being opposite the line engraved on the lid.
When the viewfinder is fitted to the camera by means of the intermediary support, use the corresponding graduated ring (blue).

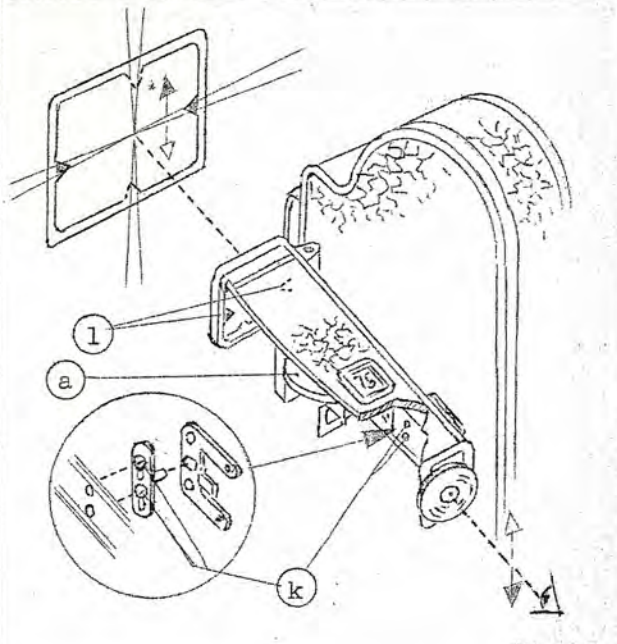

Fig. 5

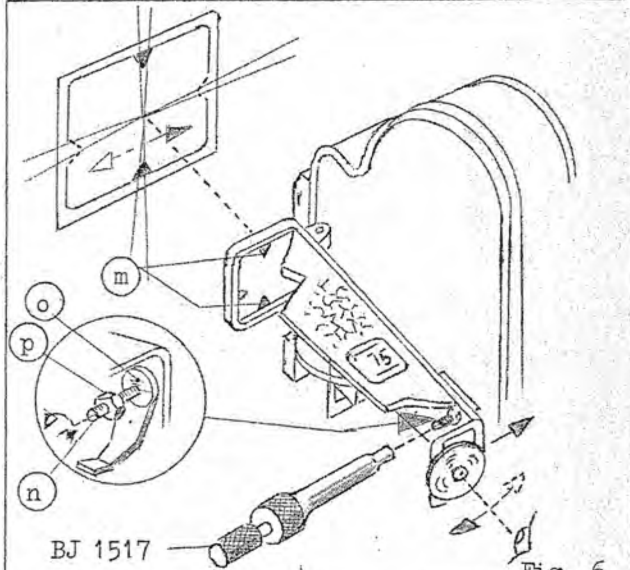

Fig. 6

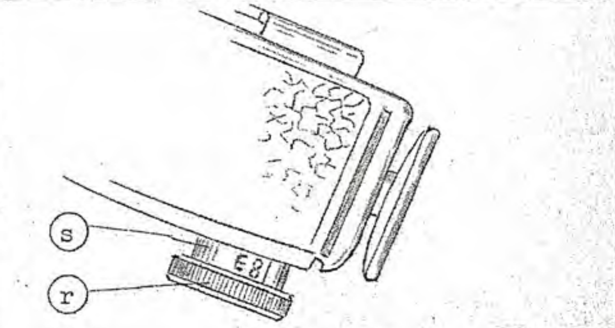

Fig. 7

PD

Plan de câblage
Verdrahtungsschema
Wiring Diagram

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300 401 ⟹

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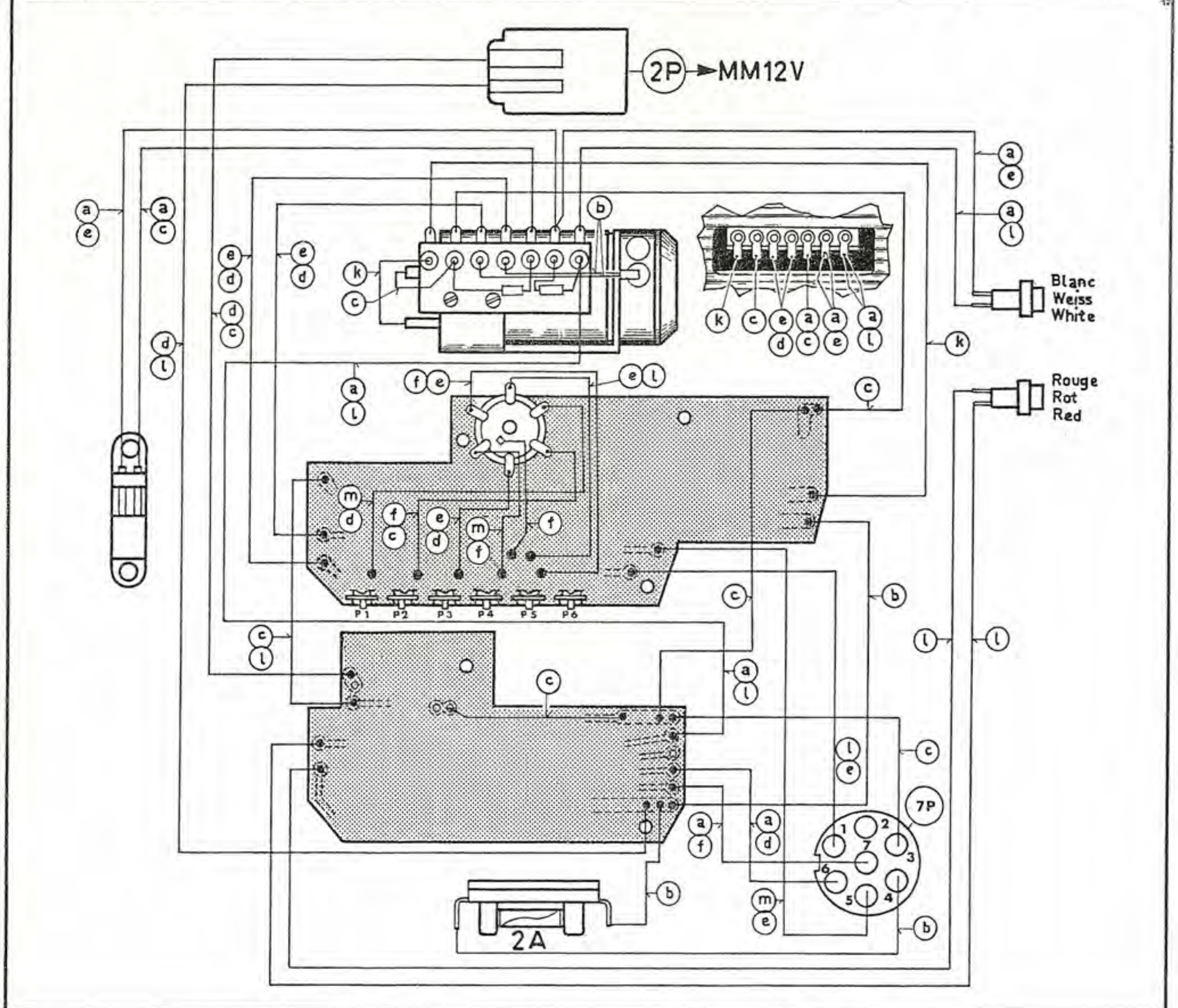

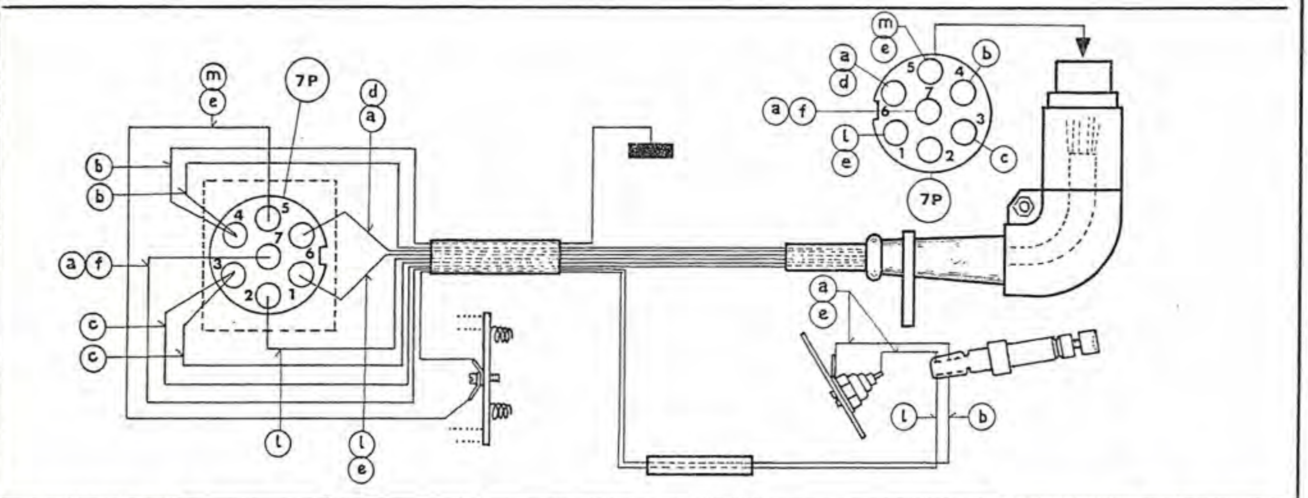

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7P
(F) Vue côté soudures
(D) Ansicht Lötstellen
(E) View from soldering points

L **1**

IT

Accessoires
Zubehör
Accessories

H16EBM
H16...+ESM

BOLEX

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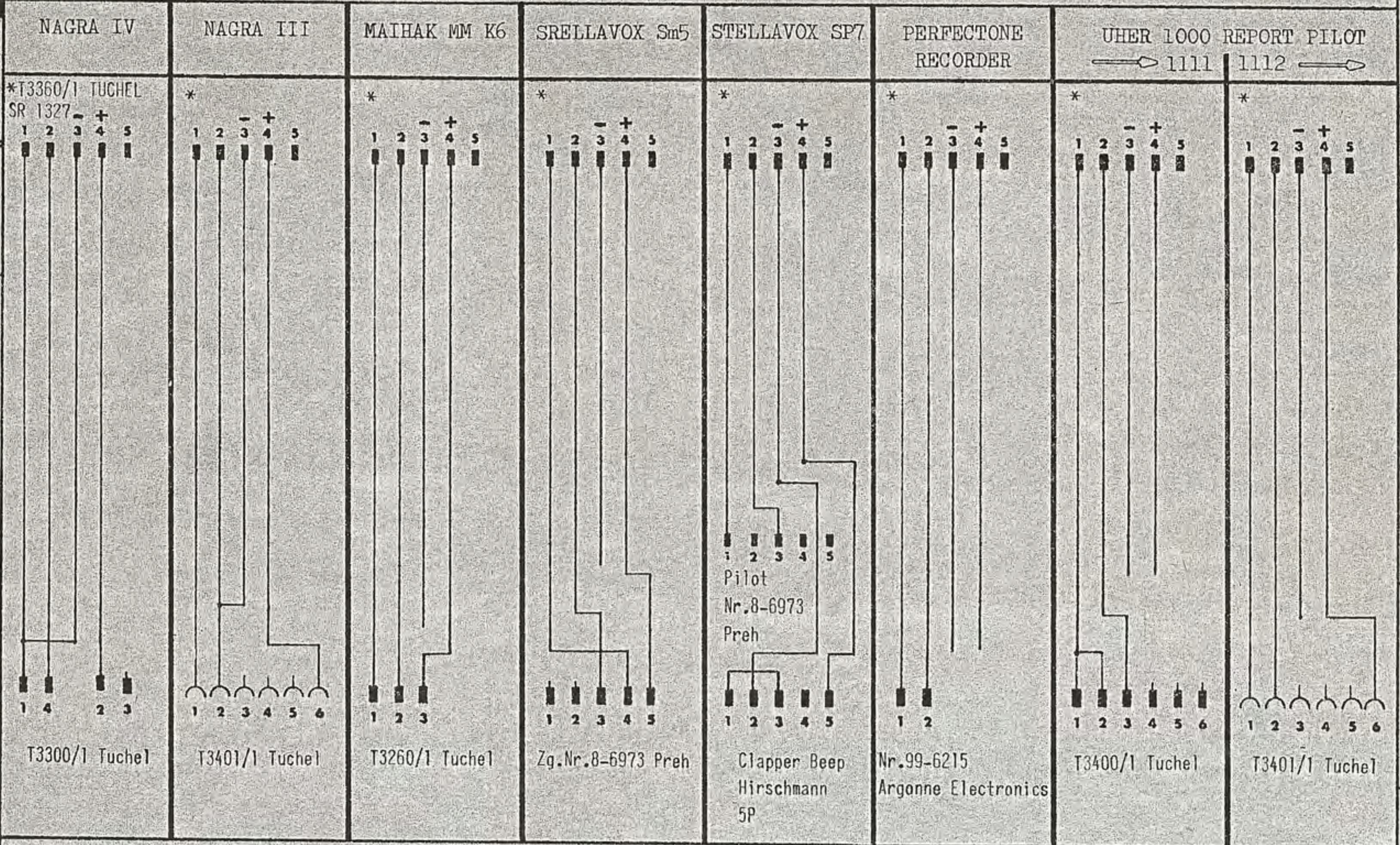
* SOSPI
1 Rose / pink / Rosa
2 Vert pâle / pale green / Hellgrün
3 Vert / green / Grün
4 Rouge / red / Rot
5



Liaisons Son-pilote → Magnétophones
Verbindungen Pilotton → Tonbandgeräte
Connections sync pulse → tape recorders

H 3
EBM

11.72

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M
I

II

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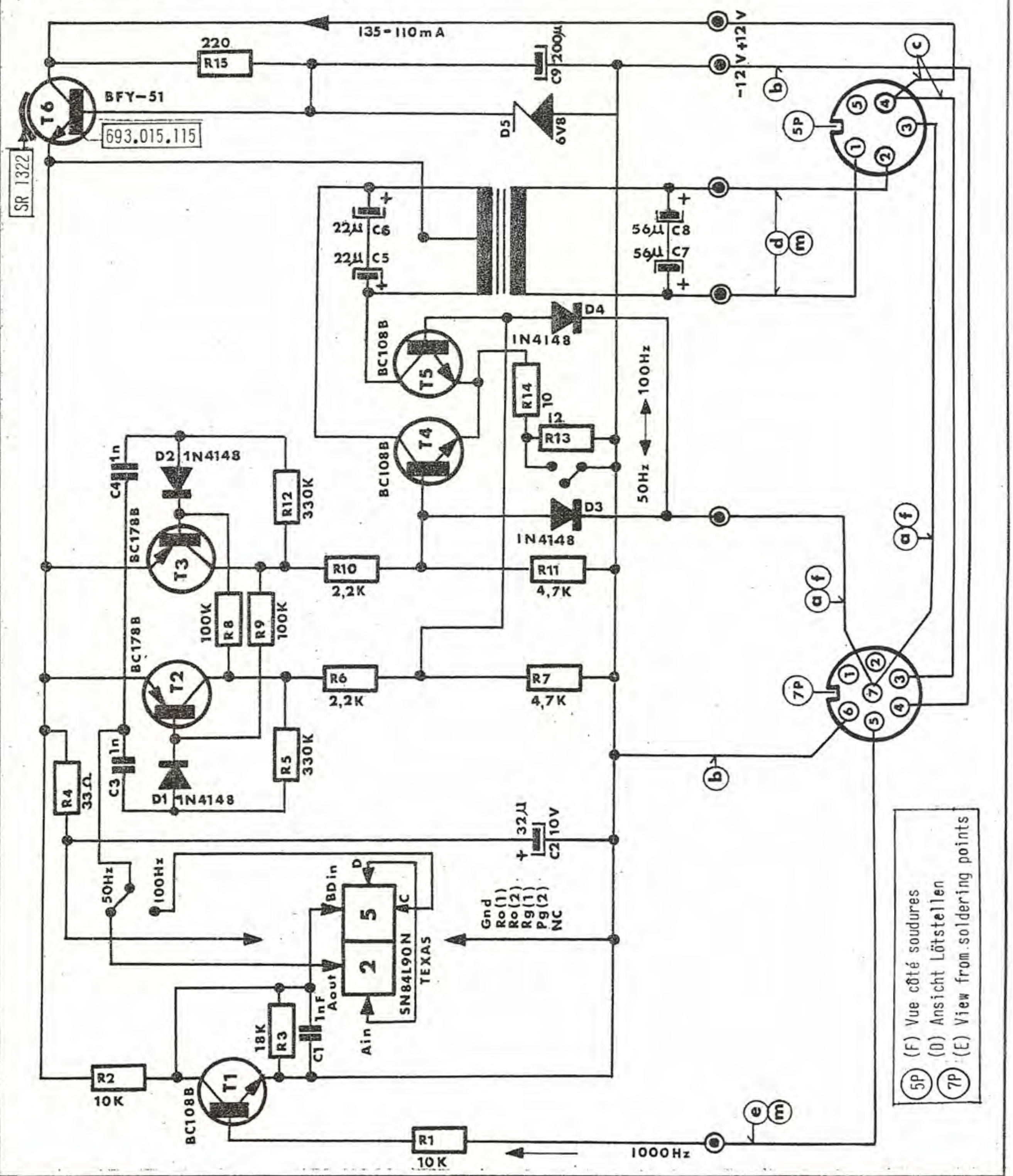
Equipement son pilote	25 i/s	50 Hz	SOLOT	Schéma électrique
Pilottonausrüstung	25 B/s	50 Hz	SOLOT	Elektrisches Schema
Sync-pulse equipment	25 f/s	50 Hz	SOLOT	Electric diagram



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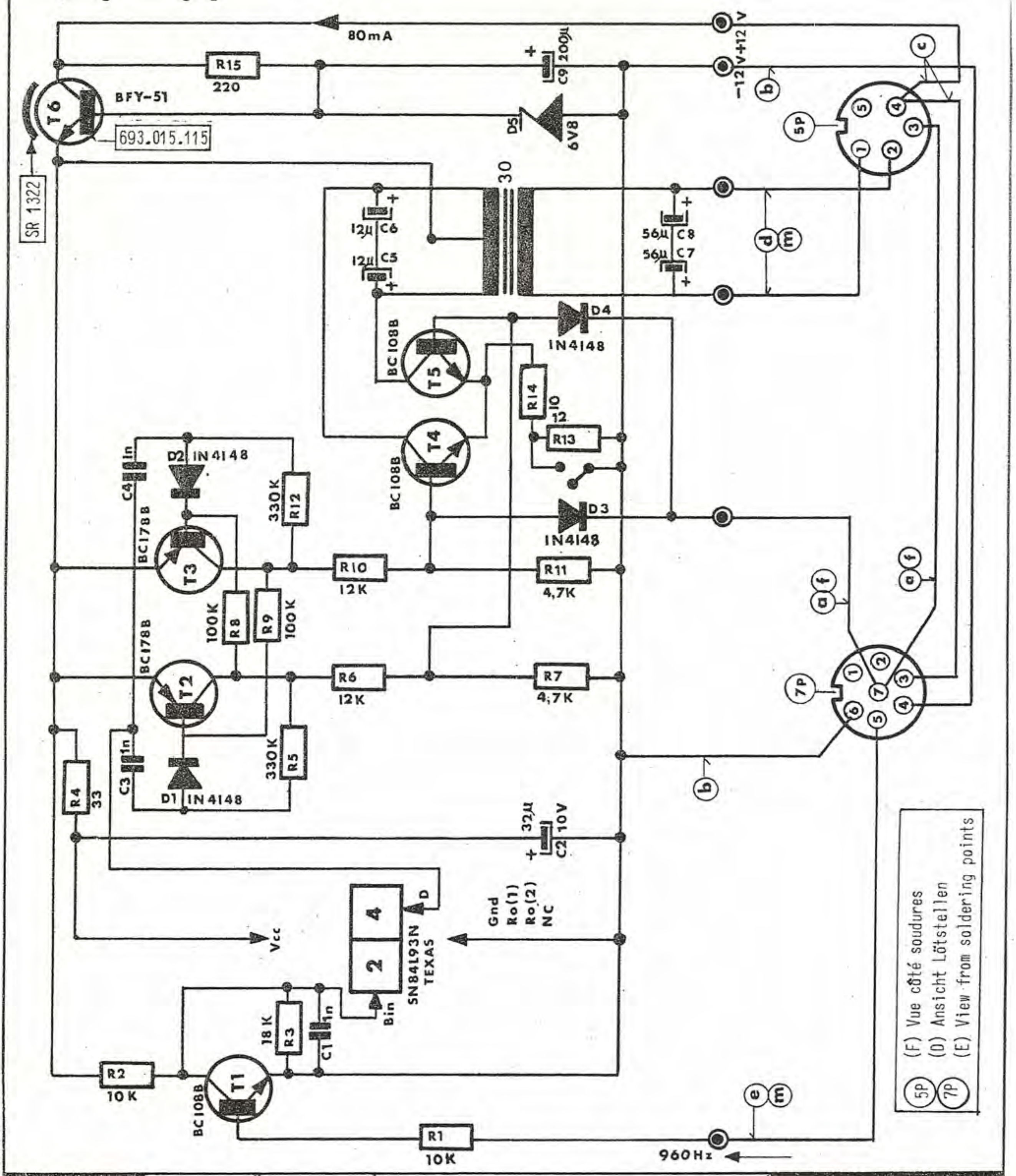
Equipement son pilote	24 i/s	60 Hz	SOLTO	Schéma électrique
Pilottonausrüstung	24 B/s	60 Hz	SOLTO	Elektrisches Schema
Sync-pulse equipment	24 f/s	60 Hz	SOLTO	Electric diagram



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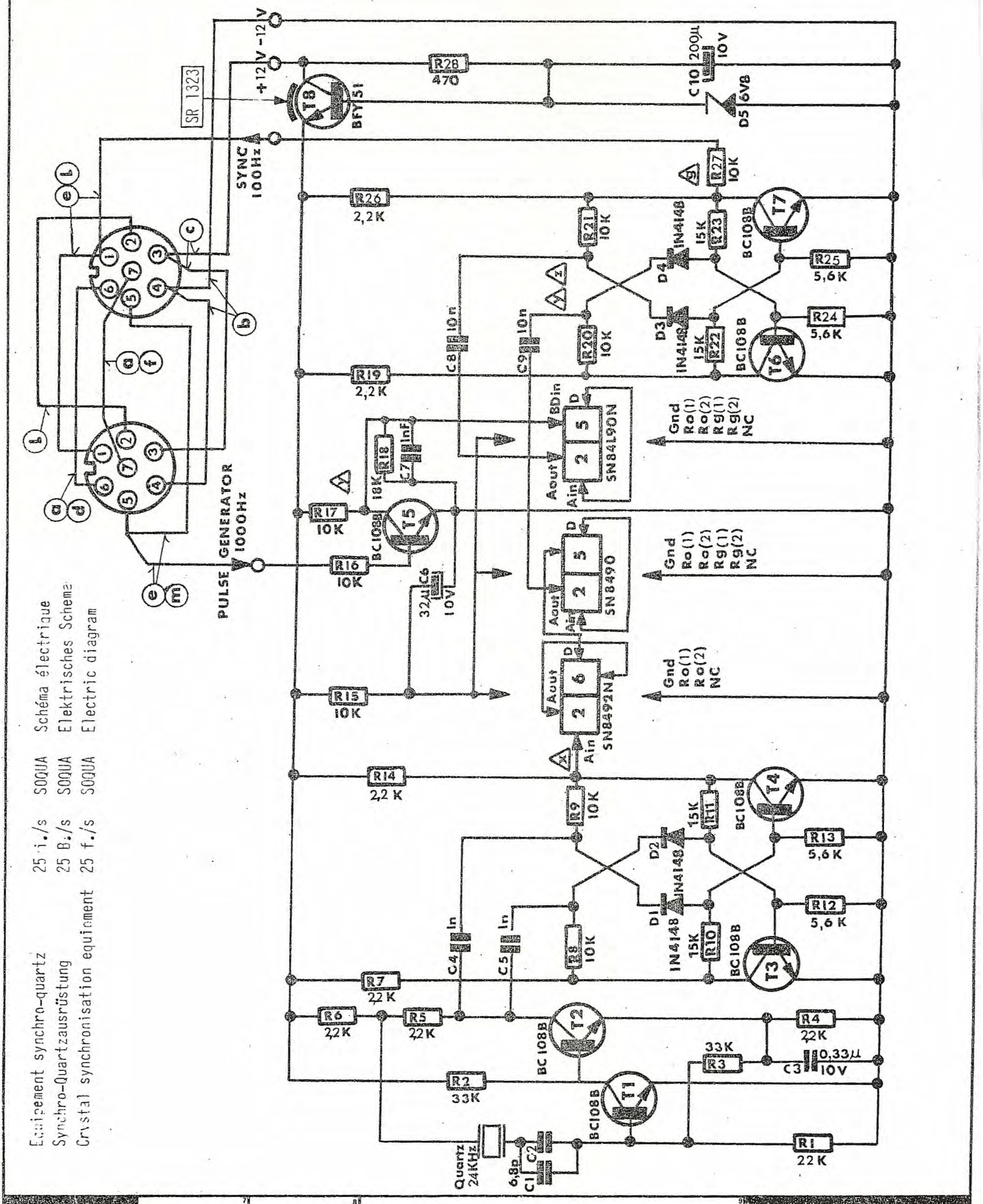

Equipement synchro-quartz	25 i./s	SOQUA	Schéma électrique
Synchro-Quartzausrüstung	25 B./s	SOQUA	Elektrisches Schema
Crystal synchronisation equipment	25 f./s	SOQUA	Electric diagram

H3
EBM

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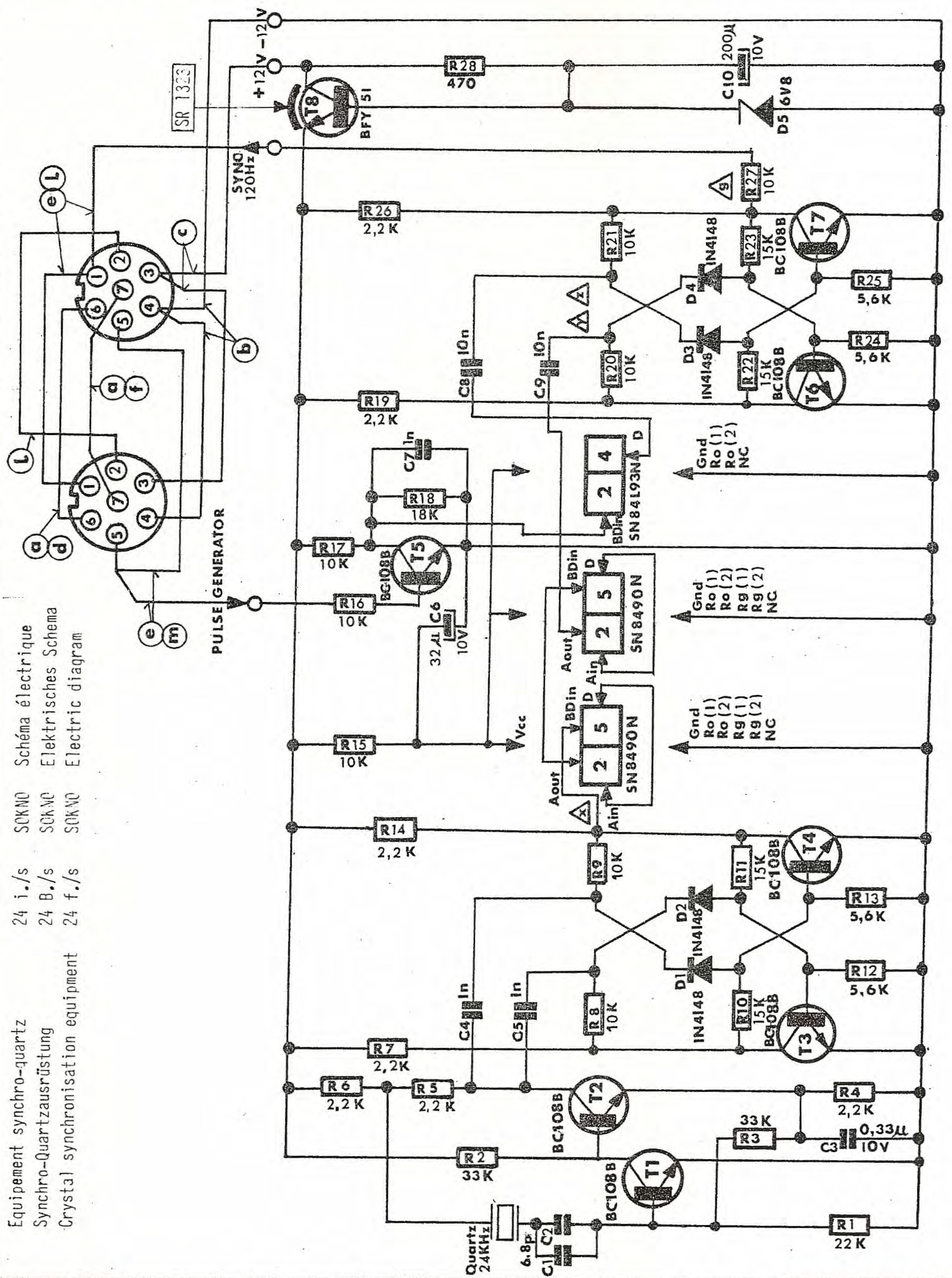
M **4**



Equipement synchro-quartz	24 i./s	SOKNO	Schéma électrique
Synchro-Quartzausrüstung	24 B./s	SOKNO	Elektrisches Schema
Crystal synchronisation equipment	24 f./s	SOKNO	Electric diagram